DG .com

Slammer stoppers

Slammer exploited a known hole that would have been plugged by the four patch mgmt. tools we tested. **PAGE 36.**

NetworkWorld

The leader in network knowledge ■ www.nwfusion.com

March 3, 2003 ■ Volume 20, Number 9

DAN SELLERS

Your take

Network executives share their wisdom

Mary Kay exec says Web site more than a pretty interface

International cosmetics giant Mary Kay, a privately held company with more than $1 billion in revenue, credits its online presence for processing 85% of sales placed by its army of consultants or directly by consumers — up from just 10% a few years back. Chief Architect for E-Business Barry Bloom spoke with Network World *Senior Writer Denise Dubie about the technology behind Mary Kay's online evolution.*

In a nutshell, how has the 'Net affected Mary Kay?

In the past, a typical Mary Kay consultant didn't have access to the Internet and the company didn't have a large Web presence. But in the past few years it's amazing how vigorously

See Mary Kay, page 16

Ethernet gaining favor on more factory floors

■ BY PHIL HOCHMUTH AND TIM GREENE

CHICAGO — Industrial Ethernet products that can lower operating costs and help manufacturers run their shops more efficiently will be a key focus of next week's National Manufacturing Week trade show.

Industrial product announcements from Cisco and others could go a long way toward advancing the factory floor's long-anticipated move to Ethernet, replacing older, special-purpose technologies. The desire to converge factory networks and use less-costly office technology is driving the shift.

Cisco, HP, IBM, J.D. Edwards, PeopleSoft, Novell, SAP and Sun will be among the 140 IT companies displaying wares at the show.

Cisco will announce the Catalyst 2955, a 12-port 10/100M bit/sec switch aimed at factory floor networks. The switch is designed to link programmable logic controllers (PLC), which

See Cisco, page 53

IBM moving workforce to IP voice

■ BY TIM GREENE

LAS VEGAS — IBM, creator of the Token Ring LAN, is in the midst of ripping out that infrastructure and replacing it with Ethernet, not just for speed and manageability, but also because it can support IP telephony.

That's key, because IBM has made the decision to go with IP telephony, embarking on one of the world's largest and most complex voice-over-IP (VoIP) projects.

"I don't think we've ever seen a commercial account to which we've proposed VoIP that has had the breadth and complexity of what we are chasing," says Yves Lozach, IBM's director of global sales support, networking services.

IBM uses hundreds of Siemens PBXs in its facilities in the U.S., Europe and Asia, and has more than 200,000 handsets in the U.S.

The value of merging the giant corporation's voice and data networks outweighs the cost of scrapping what could be one of the largest token-ring installations left in the world, an IBM spokesman told a group of analysts last week at a Siemens conference in Las Vegas called "IP PBX — A new way to communicate."

"We expect to secure significant cost savings from convergence initiatives — and superior application enablement as well," said Johnny Barnes, IBM vice president of global IT infrastructure, at a session on the company's new 2,500-employee software development plant in Toronto.

Goals just for the 2,700-phone, 9,000-desktop Toronto project include shifting to Fast and Gigabit Ethernet, switching from traditional PBXs to IP call processing and embracing wireless LANs.

Barnes told conference attendees that the project is so massive that it required approval of the IBM board, says Paul Strauss, an analyst with IDC who attended. "It is $100 million if not hundreds of

See IBM, page 14

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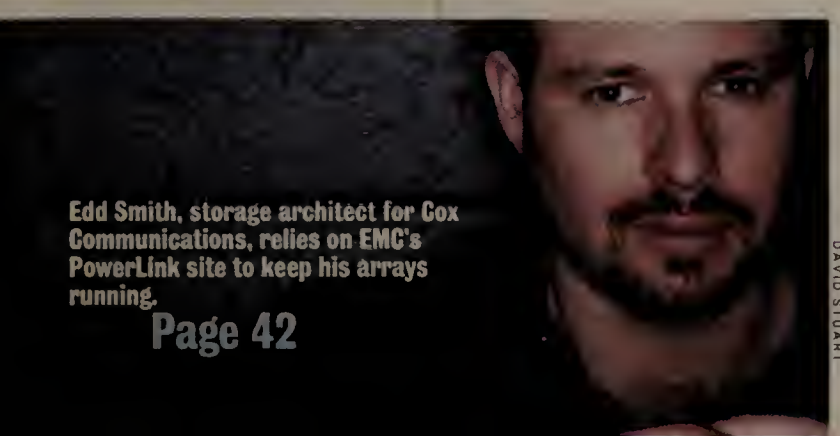

Edd Smith, storage architect for Cox Communications, relies on EMC's PowerLink site to keep his arrays running.

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DAVID STUART

Features

CHAD DOWLING

Janice Aune and David Lynn face off on the pros and cons of bankruptcy.

Security patches: Updating the latest security patches from Microsoft is too important to neglect and too tedious to do manually. So we checked out four tools that automate the deployment and management of security patches. **Page 36.**

3Com's XRN: 3Com is pushing into the enterprise backbone with its Expandable Resilient Networking interconnect architecture. Our tests show that 3Com's XRN Interconnect Kit lets you aggregate multiple SuperStack switches for high availability and excellent price/performance. **Page 39.**

Face-Off: With so many companies filing for Chapter 11 and then re-emerging debt-free, we raise the issue of whether Chapter 11 gives some companies an unfair edge. **Page 41.**

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Interactive

Face-Off: Chapter 11 bankruptcy

Read our Face-Off on page 41 and then come online to discuss it in our Face-Off forum.
DocFinder: 4522

Weblog: Diary of a data center move

Aquent CIO Larry Bolick continues his chronicle of the company's move to a new data center. This week he talks about migrating those all-important mail servers.
DocFinder: 4551

Seminars and Events

Get the latest on wireless technology

Wireless LAN technology is one of the hottest IT topics today. Join Tom Henderson for Network World's Technology Tour, "Wireless LANs: Building and Managing a Well-Integrated 802.11 Network," and discover how you can seamlessly meld wireless technology into your company today.
DocFinder: 4344

Columnists

Compendium

Recovery from a root compromise
Fusion Executive Editor Adam Gaffin links to some tips on dealing with a hacker takeover of your servers.
DocFinder: 4552

Help Desk

Getting to know your router
Columnist Ron Nutter offers advice to a new network manager who wants to get up to speed on the Cisco router he inherited. **DocFinder: 4553**

Digital Domicile

It's sink or swim at the superstore
Columnist Mike Wolf writes that retailers must meet the challenges of selling home network gear head on, or lose business.
DocFinder: 4567

Small Business Tech

One-two-punch protection
Columnist James Gaskin explains how a NAT router and personal firewall keep your network safe.
DocFinder: 4555

■ **CONTACT US** Network World, 118 Turnpike Road, Southborough, MA 01772; **Phone:** (508) 460-3333; **Fax:** (508) 490-6438; **E-mail:** nwnews@nww.com; **STAFF:** See the masthead on page 8 for more contact information. **REPRINTS:** (717) 399-1900

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News Bits

Survey: IT spending might rise, but . . .

A strong majority of companies surveyed for a recent IDC study expect to maintain or increase their IT spending this year, but those plans are tied tightly to worldwide economic stability, according to the research firm. The survey covered about 1,000 CEOs and CIOs in 12 countries. Of those polled, 85% said they expect their IT budgets to either remain flat or grow over last year. But many organizations reported that they would re-evaluate their plans throughout the year and adjust spending in accordance with economic indicators and their confidence levels. Half the CEOs polled cited low profits and a weak business climate as potential reasons to rein in IT spending, according to IDC. IDC's study predicts that half of IT spending in 2003 will go toward routine infrastructure upgrades. Vendors of storage hardware, PCs and network equipment are likely to see a sales surge because of demand for infrastructure equipment, IDC said.

N.Y. police bust counterfeit software ring

New York City police working with FBI and Internal Revenue Service agents last week raided a Queens location to seize approximately $3.2 million worth of counterfeit Symantec antivirus and utilities software, and $5.9 million in fake Microsoft software. Government officials say they believe the six individuals were operating two shell companies, Blue Media and PC Tech, in which they reaped profits of about $15 million over two years, mainly from copying Symantec software and selling it to consumers and businesses. If convicted, the six face a maximum sentence of 15 years.

Fat lady sings for Tenor Networks

Multiservice switch vendor Tenor Networks shut its doors last week, the latest casualty in a brutal market for carrier equipment sales. The company, which was founded in 1998 and raised more than $120 million in funding, managed to sell some of its gear for use in carrier service trials but was never able to penetrate production networks. Tenor's IP/Multi-protocol-Label-Switching-based packet infrastructure products were designed to support Ethernet, frame relay and ATM services — with metropolitan Ethernet increasingly the company's focus. Tenor is the latest among a host of carrier equipment companies forced to close shop over the past year. Others have included Crescent Networks and Gotham Networks.

How to lose a fortune and still be rich

Ho, hum, Bill Gates is still the richest man in the world, according to *Forbes* magazine's annual ranking of those for whom money is no object. However, there was a rather remarkable nugget of information underneath the expected ranking and raw total of $40.7 billion: The Microsoft chairman last year saw his net worth drop by an astounding $12.1 billion, or about $23,000 per minute. Not that anyone's planning a bake sale. Microsoft co-founder Paul Allen and Oracle CEO Larry Ellison also made the top 10, while Microsoft CEO Steve Ballmer and Dell founder Michael Dell checked in a bit further down the list.

Birth of a Weblog

Or rather, Weblog of a birth. A Canadian couple did a real-time Weblog of the home birth of their daughter. With photos. And some audio ("Push!").

Read the whole thing at www.nwfusion.com, DocFinder: 4561.

The Good The Bad The Ugly

Saving energy.

Energy Star, a program that the U.S. Environmental Protection Agency and the U.S. Department of Energy manage jointly, is offering free software to help IT professionals activate computer monitor sleep settings on large networks. The group says companies could save $10 to $50 per PC annually by activating power management features. Energy Star estimates that 45% of the nation's computer monitors don't take advantage of built-in sleep features, costing organizations $900 million per year in wasted electricity. ➤

Avoiding an IMess.

Francis deSouza, CEO of start-up IMlogic, said last week at a conference that companies need to get instant-messaging names under control or they run the risk of employees using names such as "biceps2big" and "studbroker" while conducting business.

Qwest under fire.

Four former executives at Qwest Communications International have been indicted on 12 charges relating to corporate accounting fraud, the U.S. Department of Justice announced last week. The former executives — who served in positions such as CFO for the carrier's Global Business unit — allegedly "devised a scheme to falsely recognize" more than $33 million of additional revenue for the second quarter of 2001, according to the Justice Department. Separately, the Securities and Exchange Commission brought civil charges against the same four former executives, plus four others, for similar reasons.

OASIS aims to shore up Web service

A standards body working on protocols for Web services has begun crafting a specification for reliability that will help plug a hole in the budding technology that is stifling enterprise adoption. The Organization for the Advancement of Structured Information Standards last week said it is forming a Web Services Reliable Messaging technical committee that will develop a specification to guarantee the delivery of messages between applications, especially those executing business transactions.

Reliability and security are two areas of Web services development that corporate users are watching closely. Both are needed to ensure that Web services can live up to enterprise demands for distributed computing. WS-RM will work with Simple Object Access Protocol, the standard messaging protocol used for Web services. WS-RM information would be inserted into the headers of SOAP messages.

WS-RM will be crafted from the WS-Reliability specification drafted in early January by Fujitsu, Hitachi, Oracle, NEC, Sonic Software and Sun. Tom Rutt, IT standards manager for Fujitsu, will serve as chair of the committee.

Be a Net Know-It-All

THIS WEEK'S QUESTION:

What's the name of the search company that recently announced acquisitions of Fast Search & Transfer's Web search division and, separately, AltaVista?

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Sun powers up software, servers

■ BY ASHLEE VANCE

SAN FRANCISCO — Sun has charted a new course for the way it will deliver software and manufacture processors in the hopes of keeping users as it faces increased competition from IBM and Intel.

Scott McNealy, chairman, CEO and president of Sun, outlined the company's new attack during a financial analyst conference held here last week. The Sun chief unveiled a project, dubbed Orion, with its goal to deliver Sun's infrastructure software on a quarterly basis with the Solaris operating system. Along with this plan, Sun has developed a new class of multicore processors that the company says will give it an edge over IBM and Intel.

The new technology comes at a time when Sun faces criticism from analysts about its unrelenting focus on the UltraSPARC processor and Solaris. Competitors such as IBM and HP offer a variety of hardware to customers wrapped in services packages that exceed those of Sun. Conversely, Dell undercuts Sun with some of its low-cost Intel systems running Linux.

"Skepticism is at an all-time high," McNealy said.

To counter this pressure, Sun will emphasize its broad software portfolio and take a very pragmatic approach to delivering applications with Orion. Then, Sun is touting the value of its hefty research and development budget as an edge over rivals.

On the software side, Sun says it hopes Orion will make life easier on its customers. The company has long released the millions of lines of code that make up Solaris on a quarterly update schedule. This means users can plan for bug fixes, patches and new technology to arrive at the same time every 90 days. Now Sun will extend this strategy to middleware products such as the Sun One Application Server, Web Server and Directory Server.

In addition, it will ship management products such as Sun Cluster, its Grid Engine software and N1 server virtualization software on the same quarterly schedule. All these products will arrive on new Sun servers or be available on the disks Sun uses to ship Solaris.

"Skepticism is at an all-time high."

Scott McNealy
Chairman, CEO and president, Sun

"I had a conversation with a CEO last week," McNealy said in an interview. "They got tired of us releasing the portal one week, the directory server after that, the app server after, the operating system and then clustering. They never knew how to certify and test to a stable platform. So now we are going to give them quarterly releases."

Sun will deliver the Orion package for the first time near the end of the third quarter, making all the software available for standard Solaris and the version of Solaris that runs on Intel and Advanced Micro Devices processors. It then will follow near year-end with the same package for Linux.

The company plans to offer a traditional licensing model akin to what is now offered, a metered model and a flat-rate fee assessed at regular intervals. Sun hopes customers will pick the flat-rate route, which the company says would be most beneficial for users.

Meanwhile, Sun's new approach to chip making is a more radical move, as the company is building a type of symmetric multiprocessing system on a chip that differs from anything IBM or Intel has talked about thus far.

Known as the H-series, the new breed of chip will put multiple low-power, low-cost processor cores on a piece of silicon surrounded by huge amounts of memory. Sun says this will make its low-end servers churn through software faster than competing systems that rely on single-core, more-powerful chips.

"If it will boost performance, I will be interested," says Philip Brown, a senior systems administrator for a large financial institution in the Southwest. Brown already runs threaded applications on his servers, but says chip multithreading would help the operations of his Oracle servers and Web servers.

"I recently saw Java spec marks on an IBM p690 vs. a Sun 15K server. The machines had approximately the same megahertz per CPU, but the IBM did significantly better, on a CPU-to-CPU basis," he said. "I would expect [with chip multithreading] that Sun would level this current inequality."

The new chips should provide a real boost for software written to execute multiple software threads, or sequences of software instructions being executed by the processor, says David Yen, executive vice president in Sun's processor and network products group.

With multithreaded software running on several processor cores, Sun should be able to reduce the waiting time for data to return from memory.

The first H-series product will use two UltraSPARC II cores on a chip and be released in 2005.

Vance is a correspondent with the IDG News Service's San Francisco Bureau. Network World *Senior Editor Deni Connor contributed to this story.*

NAI, CA get tougher on viruses

Latest McAfee software selectively scans.

■ BY ELLEN MESSMER

Network Associates Inc. and Computer Associates last week separately announced antivirus-software upgrades in an effort to differentiate their offerings in a market that observers say has nearly reached commodity status.

Network Associates' McAfee Security business says a major improvement in its VirusScan Enterprise 7.0 software is that it no longer scans all files for viruses. It scans only those that have changed, in an effort to consume less processing power. Competitor Sophos takes a similar approach.

McAfee's Windows-based desktop and server software also can be configured to ignore certain files designated "low risk."

"An example would be a CAD program, say 50 megabytes big, and previously VirusScan would be chugging through that," says Ryan McGee, McAfee's group product marketing manager. "Some applications don't get along that well with antivirus software."

VirusScan 7.0, which costs $45 per node, also now can scan in memory, which should help flush out computer worms, such as the recent MS-SQL Slammer, that remain resident in memory.

Computer Associates, which also announced Version 7.0 of its antivirus product, contends that its software already has the ability to scan in memory.

New to CA's eTrust Antivirus 7.0 is technology called Roam About, designed to optimize the downloading of virus signature updates. Updates now can be issued from the nearest server. Previously, end users were assigned to specific servers.

McAfee says its software has a similar capability. The company also says distributing VirusScan should be less bandwidth-intensive now, given that the software has been reduced about 30% in size to 12M bytes.

The eTrust Antivirus 7.0 product, which now supports Microsoft XP and Pocket PC as well as other 40 computer platforms, is priced at $35 per user.

Hartford Hospital, which runs about a dozen medical facilities in the Northeast, is testing a beta version of the latest eTrust Antivirus product, with an eye toward using Roam About updating for medical professionals who often use their laptops outside the Hartford medical facilities.

"After being hit badly by the Nimda worm, which knocked out 2,500 machines and took us two and a half weeks to clean up, we now have a strict policy about using antivirus software," says Chuck Slenker, a systems engineer. ■

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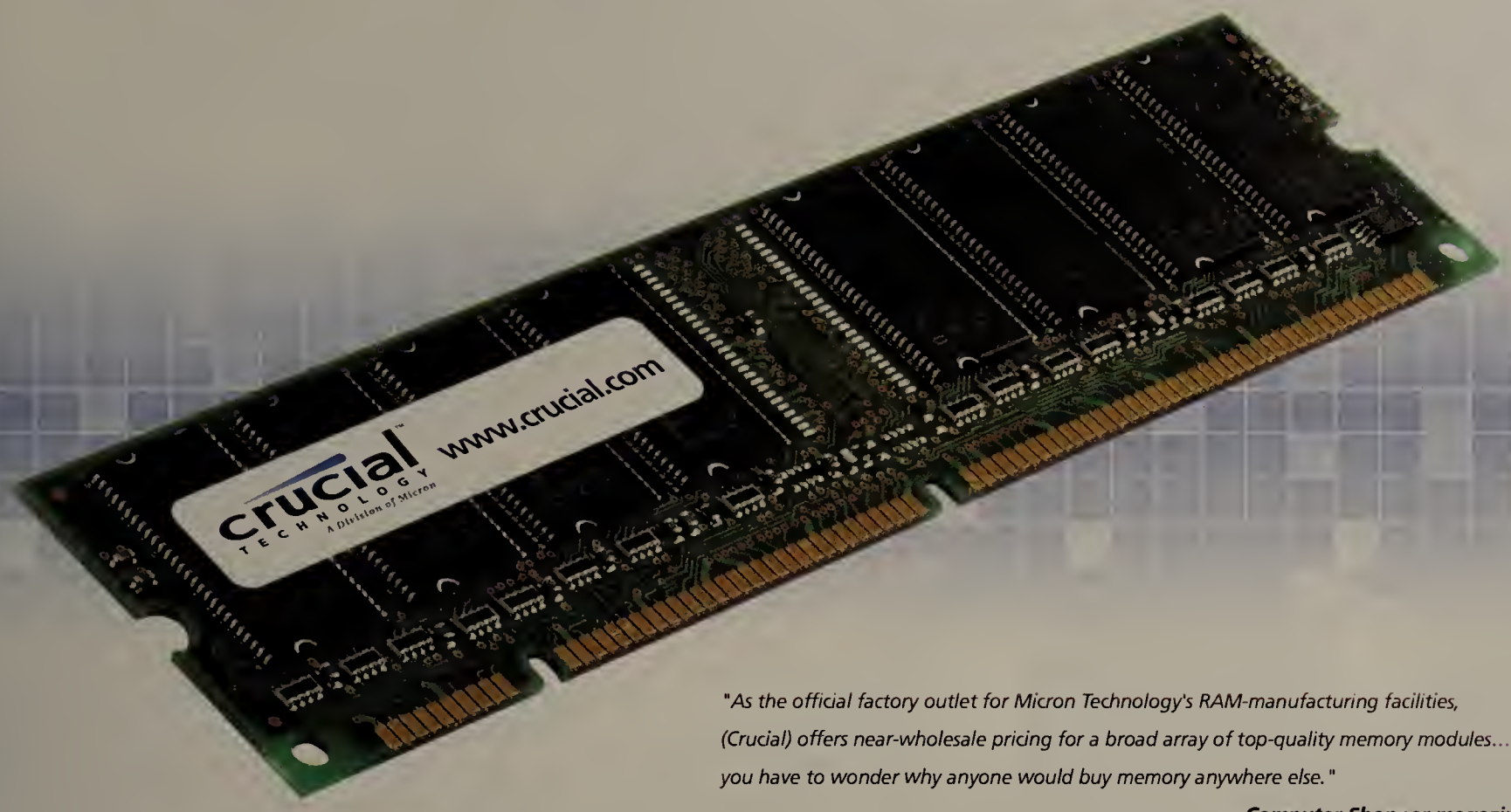

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FCC ruling could mean status quo

■ BY MICHAEL MARTIN

The Federal Communications Commission's much-ballyhooed triennial review last month was supposed to kick-start the ailing telecom industry, but observers who've digested the controversial decision say the regulations won't have much immediate effect.

A year from now, they say, the industry will look largely as it does today. Some say the matter might remain legally entangled for years, in part because FCC staffers still are hashing out the fine print.

The FCC's move to deregulate the broadband market by phasing out line sharing and protecting the regional Bell operating companies' rights to any new network builds was sold by proponents as a way to spur RBOC investment in broadband technology. But the commission's decision to leave unbundled network element-platform (UNE-P) rules basically unchanged has not pleased the RBOCs.

"I don't see this driving any spending by the Bells," says Jason Knowles, an analyst with Current Analysis.

Pat Hurley, an analyst with consultancy TeleChoice, concurs.

"Even though [the Bells] won some concessions on broadband they came out whining and complaining about the overall ruling," he says. "The only thing that's going to get the Bells to spend is if we see cable companies launch more voice-over-IP services that begin to take away customers from the RBOCs."

However, John Cordova, an analyst with research firm Infonetics, says the RBOCs could begin investing in more equipment, such as broadband-enabled digital loop carriers, ATM switches, routers and softswitches, as a result of the FCC decision.

"The RBOCs can now feel safe making some network upgrades," he says.

Even DSL provider Covad Communications, which perhaps stands to lose the most from the FCC's regulations, shouldn't see significant changes in the short term, say industry watchers.

Line sharing still will be around for three years, Hurley notes, and Covad already has multiyear line-sharing contracts. Line sharing doesn't affect business customers, who make up the majority of Covad's customer base, he says.

Covad used line sharing largely to help the company fill space on its national network.

Another reason the FCC decision might not have an immediate effect is that it will likely be challenged in court. Verizon CEO Ivan Seidenberg last week said his company would take legal action if the final FCC order gives states too much control in determining UNE-P policy.

The initial ruling indicated that individual state utilities commissions would determine UNE-P discounts, but did not spell out exactly how much latitude the states would be allowed.

If, as anticipated, the final FCC order next month gives competitive local exchange carriers (CLEC) such as WorldCom and AT&T continued widespread access to UNE-P, the RBOCs are likely to challenge the order in court. FCC Chairman Michael Powell, who had hoped to pass a ruling that would have phased out UNE-P more rapidly, also might turn to the courts.

UNE-P is a bundle of network elements that competitive carriers can lease from the RBOCs at low wholesale prices determined by state regulators.

The RBOCs have argued that UNE-P rules are unfair because they don't take into account the true cost of RBOC network equipment. The RBOCs had hoped the FCC's review would eliminate UNE-P as quickly as possible. The FCC ruling will continue to give CLEC-friendly state regulators a large say in UNE-P pricing and availability.

Blair Levin, a regulatory strategy analyst with investment firm Legg Mason, says that no matter what form the final FCC order takes, it will be tied up in the courts for two to three years.

While it's unlikely that there will be major changes in the FCC order, the fact that it has not been finalized makes it tough to determine exactly what effects it will have in shaping the industry.

Thomas Nolle, president of consultancy CIMI, says the FCC will come up with guidelines on how the state regulatory bodies are supposed to enforce UNE-P. If the guidelines contain, specific thresholds at which UNE-P providers would have to install their own facilities, the RBOCs could get their way on UNE-P, Nolle says.

Regardless of what happens with the FCC decision, Nolle says traditional voice equipment vendors such as Lucent, Nortel and Alcatel will come out on the losing end, while data equipment vendors such as Cisco and Juniper will emerge as winners because the RBOCs are looking to upgrade their old TDM networks to packet networks. ■

Regulatory ramifications

Here's how the FCC's triennial review ruling is likely to affect the parties involved.

	LECs	CLECs	DSL competitors	Equipment makers
FCC's decision to let states handle UNE-P	Hurts LECs as UNE-P will remain available for at least the short term.	Helps by giving continued access to inexpensive LEC voice services they can resell.	No effect.	Hurts traditional voice gear because neither CLECs nor LECs have incentive to buy.
FCC's decision to deregulate broadband	Won't have to give competitive DSL providers cut-rate access to LEC lines through line sharing. Also won't have to share new broadband networks.	Hurt slightly, because they won't be able to resell packet voice.	Hurt seriously. Without line sharing DSL competitors will have a tough time competing in the consumer market.	Should help, as LECs will have incentive to spend on new broadband and packet voice gear.
Overall effect	Got their way on broadband, but unhappy they must still give competitors access to UNE-P.	Got what they wanted. CLECs can compete with LECs in the consumer market.	No bright spot. Consumer broadband market will belong to LECs and cable companies.	Should be positive, but only if LECs decide to spend.

Aelita zeros in on Active Directory restructuring

■ BY JOHN FONTANA

DUBLIN, OHIO — Aelita Software this week will introduce the first software that provides automated tools for reshaping Microsoft's rigid Active Directory.

The company's Enterprise Migration Manager (EMM) lets users combine different Active Directory architectures or split one directory into several directories, processes referred to as pruning and grafting.

These capabilities are available in Novell's eDirectory and others.

EMM gives those who initially set up one or many Active Directory forests — a collection of domains, users and resources — options to change those configurations automatically.

The need to combine or split directories might be prompted by divestitures or acquisitions. Users also might be compelled to move domains between forests or groups of users between domains because of corporate restructuring. Users also might want to split a forest into multiple forests to establish security boundaries that are impossible to create between domains in one forest.

One knock against Active Directory has been that once it is set up it is nearly impossible to make those sorts of changes because Microsoft has yet to provide the necessary tools. Also, users who make implementation mistakes typically have to start over from the beginning.

For Community General Hospital in Syracuse, N.Y., EMM made it possible to break away from a health alliance that dissolved into two separate hospitals. EMM was used to create two new and separate directories.

"We met with Microsoft and they said they did not have tools to do this," says Scott Elia, director of IS for Community General. "We weren't in a position to just reshape the Alliance directory, we had to rip it in two."

Two new directory shells were built, and EMM was used to migrate 1,000 users and 400 PCs over nearly a four-week period.

"Basically we preserved the secure IDs that we had established," Elia says.

Secure IDs are unique identifiers linked to access controls and given to each user in the Microsoft environment. Elia says the company had to clean up secure ID histories and trust issues.

Aelita rivals Bindview, NetIQ and Quest offer Active Directory migration tools, but they are not as advanced as EMM, according to experts.

While Aelita's EMM will help smooth rough spots, it does not negate the fact that restructuring a directory still is a complex task that requires tinkering with underlying security mechanisms.

"Aelita has a very viable tool," says John Enck, an analyst with Gartner. "It's very flexible. Now the penalty for making a mistake when designing Active Directory is much lower."

EMM, which costs $16 per user, incorporates all aspects of Active Directory migration. EMM provides the option to roll back changes. ■

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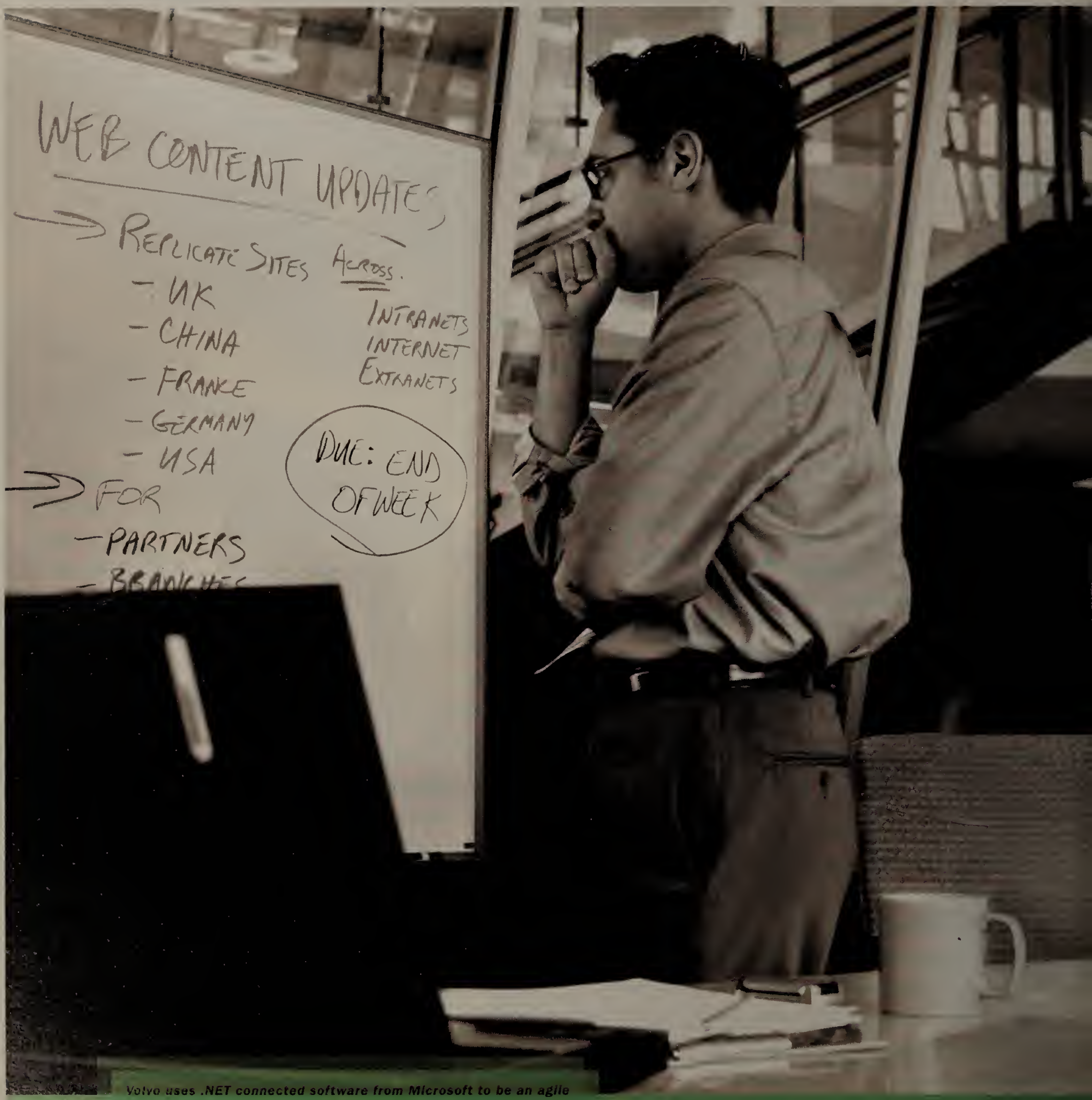

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Microsoft

Palmisano preps for IBM's growth

■ BY ANN BEDNARZ AND DENISE DUBIE

ARMONK, N.Y. — First-year IBM CEO Sam Palmisano has shown the kind of corporate vision experts expect of him. In the past 12 months, he's filled Big Blue's professional services gap, shored up its software division, and reinvigorated its server portfolio. But a tough economy and voracious competitors will keep Palmisano from resting on any laurels he might have earned in his rookie year.

Key events Palmisano has been part of since he took the helm last March include:

• **PwC acquisition:** After only four months as CEO, Palmisano orchestrated a deal to buy the consulting arm of PricewaterhouseCoopers for $3.5 billion — a bargain compared with the $18 billion HP considered paying in 2000. With PricewaterhouseCoopers Consulting, IBM gained instant credibility in the professional services market and expertise in key vertical industries.

"Getting professional services added the topping on to the rest of the services business," says Frank Dzubeck, president of Communications Network Architects.

But the deal put some of IBM's partner relationships at risk, says Martha Young, president at research firm Nova Amber. "By having an in-house consulting arm, the IBM strategy of building up its managed services division through channel partners comes into conflict," Young says. "I don't think this move was the best use of IBM's investment capital."

• **E-business on-demand:** In his first major customer address as CEO, Palmisano announced in October 2002 that IBM was putting $10 billion behind its "e-business on-demand" initiative. The now familiar corporate credo describes a model wherein companies treat computing resources — such as server capacity, storage and bandwidth — like utilities, paying for only the processing power they use. Young says it's a wise strategy for IBM. "The utility model works for companies of all sizes," she says.

But e-business on-demand is no cure-all, says Jean-Pierre Garbani, research director at Giga Information Group. "It sounds good on paper, but at the end of the day users will still have to plan carefully for capacity, as they did before," Garbani says.

Palmisano's IBM

Under harsh economic conditions, Palmisano's IBM managed to pull in 2002 revenue of $81.2 billion, a decline of just 2% from 2001.

Global services

Strategies:
- Continue to grow professional services business.
- Develop pay-as-you-go utility-like service offerings.
- Build grid-based infrastructure for on-demand rollout.

Software

Strategies:
- Achieve stronger integration among software products, more code sharing.
- Penetrate ripe markets, including SMB.

Hardware

Strategies:
- Build out midsize server offerings.
- Improve blade-server lineup.
- Continue to shed unproductive divisions.

• **Trimming the fat:** Palmisano showed he's not afraid to lighten IBM's load. He trimmed his workforce by 5%, or about 15,000 employees, last year and sold IBM's money-losing hard-disk-drive business to Hitachi. In other areas he's tried consolidation — such as folding technology from poorly performing units into more stable divisions. For example, Palmisano brought storage, which at one time was a separate division, into IBM's server area.

• **Autonomic computing:** Palmisano formalized IBM's Project Eliza initiative in October, announcing plans to form an autonomic computing division dedicated to building self-managing and self-correcting features into IBM's myriad products and services. By equipping PCs, servers and software to take care of themselves — handle configuration, identify and fix ailments, and allocate and optimize resources — IBM aims to lessen the burden on IT staff. Experts are divided on its corporate appeal.

IBM's autonomic computing push is timely, says Donna Scott, vice president and research director at Gartner. "Customers are ready for a reduction in management costs and complexity that keeps them from investing in new IT initiatives."

Nova Amber analyst Young disagrees. "Customers and businesses are not ready for autonomic computing," she says. "The idea is good, but the thought of giving up that much control of the network ecosystem is too scary for the general population."

• **SMB push:** Small and midsize companies significantly outnumber large ones, and Palmisano-led IBM has made it clear Big Blue wants a bigger piece of that action. IBM in November debuted its Express line of middleware designed and priced for small and midsize businesses. IBM also is pumping significant resources into its partner network, through which it reaches smaller companies.

IBM has the products to attract small and midsize customers — maintaining focus and convincing skeptics of its commitment to this sector will be its biggest challenge, says Richard Ptak, president of market research firm Ptak & Associates. "IBM has repeatedly announced initiatives to pursue this market, but not backed it up with the executive support and focus to drive it to conclusive success," Ptak says.

• **Midrange servers:** IBM is going full bore after Unix buyers with a midrange server lineup that offers some of the autonomic computing features of its larger servers. Unveiled in November, the eServer pSeries 650 is the first to use IBM's Power4+ processor, a 64-bit microprocessor built using IBM's power-saving and performance-enhancing 0.13-micron fabrication process.

• **Blade server entry:** IBM made its first splash in the popular blade server market late last year, delivering its inaugural Xeon-powered BladeCenter products in December. Modular blade servers are appealing for their space-saving and low-power-consumption characteristics. Blade servers reduce operational expenses for customers, which is key, Dzubeck says. "You cannot justify equipment purchases in the enterprise, or anyplace, unless you can show operational expense savings," he says.

• **Rational Software acquisition:** Five months after making the move to buy PwC Consulting, Palmisano made another multibillion-dollar play, this time putting up $2.1 billion to buy software tools maker Rational Software. While the deal adds to IBM's portfolio integration challenges, it also raises IBM's profile in the application development market. ■

IBM

continued from page 1

millions of dollars," Strauss says.

The Toronto project was installed in less than eight months using a team consisting of staff from IBM Global Services, IBM Global Voice Infrastructure and Cisco. IBM's own messaging management platform, Message Center, is integrated into the network to provide voice mail and unified messaging. At other sites, IBM also has used Avaya and Siemens IP phone gear.

The network overhaul was prompted by a strategic decision to shift company telecommunications to IP that started three years ago. IBM has announced four other sites — Calgary, Alberta, Dubai, United Arab Emirates, Singapore and Tel Aviv, Israel — that also have been converted. Other sites in India and Portugal also have been upgraded to VoIP, Lozach says.

These projects represent trials, says Frank Dzubeck, president of Communications Network Architects, who attended Barnes' presentation. Barnes could not be reached for comment.

"You need the Ethernet in place to do [VoIP], and that's a very expensive prospect," Dzubeck says. Likely, the conversion won't be complete until 2005, he says. IBM has more than 300,000 employees, 24 manufacturing plants and eight research facilities in North America, Europe and Asia.

IBM is backing its old-style Siemens PBXs with gateways to IP switches and is using an IP network service from Infonet to connect sites, Lozach says.

The scope of the project is so large that IBM is considering using carrier-grade softswitches to control calls among sites.

Late last year, IBM announced an IP telephony consulting and integration service, saying the technology could save businesses up to 30% on network costs if new networks are being built from scratch. They can increase productivity and support new applications such as unified messaging, IP-based CRM and IP-based contact centers, IBM says. The company says that IP telephony would help reduce bandwidth needs, and lower management and application-integration costs.

IBM uses gear from Alcatel, Avaya and Cisco to deliver these services. Lozach says IBM is weighing whether to roll softswitches into the technology it uses for its corporate integration customers.

It seems IBM is using these companies' technologies it is trying to sell to its own customers, Dzubeck says. "Boy, they literally know how to eat their dog food nowadays," he says.

Companies have to experiment with the technology, build corporate confidence in it, choose vendors, find a common platform that gives the features and functions they want, and ultimately shift the responsibility for telephony to the data network group. "Telephony is becoming an application. The final step is conversion," Dzubeck says.

Beyond the implications this project has for the future of IP voice, it also marks a watershed for token ring, even though it hasn't been much of a factor in corporate networks for years now.

"It's the last gasp," Strauss says. "If the company that invented it is ripping it out. What does that say?" Strauss says.

Network World Senior Editor Ann Bednarz contributed to this story.

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Q A

Mary Kay

continued from page 1

they've adopted it. To go from less than 10% of your orders coming from electronic means to 85% coming off the Web in a three-year period is huge.

How much of the IT infrastructure is dedicated to the Web site?

The 700 servers [and 2,000 desktops] we have support everything, including corporate [applications]. There are 200 servers involved with our Web presence. We started with about 20 servers dedicated to our Web presence. In late 1998 through 1999, we went from 20 to 200 in six months. We totally underestimated how many servers we were going to need, and we totally underestimated the adoption rate. There was this period of time [when] we were just blowing up our architecture every two months, trying to cope with the load. It was a big challenge because the executives and the management didn't always support that. We weren't given this big chunk of money up front. It wasn't until we proved that we needed something that we got it. Today, we're finally built out. We run a 16-processor Unisys [system outfitted with] SQL Server as our back end for all of our Web stuff.

What types of servers do you have?

Predominantly Windows [but also VMS, Solaris and other servers]. We use a mixture of Compaq, Dell, IBM and Unisys servers. There are probably 50 different configurations from duals with 512 megabytes of RAM to 16 processor boxes with 16 gigabytes of RAM. We have spent a lot of our time trying to leverage higher processor servers so that we can have less of them. We just went through a big server-consolidation phase moving to [Microsoft] .Net and we reduced our overall server count by about 30, which was a lot.

What is the cost and the expected ROI with your server consolidation?

We used to have 46 servers to run our Web applications for our sales force, and once our .Net migration is complete we will have 20. This is for a number of reasons: .Net is compiled, and it scales up better. We are moving from dual-processor servers to quad-processor servers. .Net is more stable so we can afford to run all our applications on one server type — those 20 servers are duplicates of one another and share the load.

Any advice for others looking into server consolidation?

There is no magic bullet. Part of the issue is that there are so many different versions of software. And [the software packages] don't all work together on the same box. So you have to be very careful about what you put on the same server. You also have to realize it's going to slow down your ability to deploy changes to a highly consolidated server because you have to make sure that your changes don't break everything else that runs on it. It's really hard in the Microsoft world to solve that problem easily because there are so many disparate applications. A lot of the time, the applications are not well thought out. And it's not just Microsoft's fault. The applications that run on the Microsoft platform are not always well written.

Getting personal

Barry Bloom

DAN SELLERS

Title:	Chief architect for e-business (since August 2000); reports to vice president of e-business and technology enablement
Organization:	Mary Kay
Responsibilities:	Designs the hardware infrastructure to support Mary Kay's Web presence, and oversees development and deployment of enterprise software. Also determines direction for new IT initiatives, such as .Net conversion, storage-area networking and content management systems.
Previous jobs:	Application software developer for USDATA, a factory automation software vendor.
Background:	Attended the University of North Texas; Microsoft Certified Specialist.
First computer:	An Atari 400, which had a flat keyboard without any keys.
Home network:	Seven PCs running a variety of operating systems from Linux to Windows, connected to the Internet via an AT&T cable modem. Favorite computer game is Civilization 3.

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Why .Net?

Our experience was with [Microsoft's] Visual Basic 6 and [Component Object Model] using tools like Site Server 3.0 Commerce Server Edition to supplement our development efforts. What we learned from that experience allowed us to build the best system for Mary Kay using .Net technologies.

How do you take 50 applications and bring them over to .Net?

Most of the struggle in developing a Web application is in figuring out what you want it to do. But to take an existing Web application and bring up a new version in .Net is nothing compared with starting a brand-new application from scratch. We took our existing ordering application, which services 85% of our business and was written in Microsoft's Site Server 3.0 Commerce edition, a 5-year-old technology, and brought it over to .Net. We took the way it looked, the way it worked, all the rules that were in there, and just took that knowledge and wrote a .Net application from scratch. It took us about two months. The ordering applications originally took 18 months to develop. When we [moved to .Net] we reduced the number of servers by 20 and were able to increase the number of orders we could handle 10 times.

How much is Mary Kay spending on .Net, or what's the anticipated total cost of ownership (TCO) or ROI?

.Net is free except for the development tools and that cost is per developer, so it's pretty negligible. As for TCO, we will reduce the number of servers required to run our applications by 50% just by moving to .Net.

Are you deploying Web services with .Net?

There are a couple of different ways we use Web services: to integrate into our legacy systems; to wrap third-party applications that haven't provided their own Web services; and to communicate with partners. For example, we have Web services that wrap our tax calculation package. Mary Kay is not about calculating tax rates for the whole country, so we bought something that does that for us, but it didn't provide a Web service interface. It made it a lot easier for us to integrate our .Net applications into it by just wrapping it with a Web service.

What are the keys to successful Web services?

It would be easy with all the hype around Web services to decide to do [them] everywhere. But all that is going to do is introduce this artificial layer that is going to be slower than other kinds of distributed, component models. It's an XML-based communication protocol, so it's verbose. The kinds of Web services I see us doing are ones where the third-party vendors don't run the kind of technology we do. ProPay is a proprietary Unix-based system. We were able to just say, 'Here's our Web service interface and here's the documentation for how to talk to it.' By defining the Web service you're giving the documentation so you don't have to go and explain to another development staff how to talk to it. It's a standard so it makes it easy to do business-to-business transactions.

Where is Web services not working today, but could possibly in the future?

The biggest problem with Web services are going to be trying to do high-volume transactions over the Internet. We've talked about deploying clients to desktops for our sales force, where they would do Web service transactions in the process of doing their order. But we just feel like now we're still going to have to be careful in terms of security about the kinds of transactions we introduce to Web services.

What about your IT infrastructure keeps you up at night?

We have all these policies in place to manage our applications as we move forward, [but I worry] we're going to do something in an attempt to be innovative that will be detrimental to our site. When we first innovated, there were all these mechanisms for taking orders that didn't involve the Web; now if we do something that devastates our online ordering application, boom, we're not taking orders. It just can't be OK to be down for eight hours. ■

Infrastructure

■ TCP/IP, LAN/WAN SWITCHES
■ ROUTERS ■ HUBS
■ ACCESS DEVICES ■ CLIENTS
■ SERVERS ■ OPERATING SYSTEMS
■ VPNS ■ NETWORKED STORAGE

Short Takes

■ **IBM** has pepped up the low-end server in its Unix line with the addition of one of the latest Power4 processors. IBM will start shipping the **p630 server** with a 1.45-GHz Power4+ immediately. The new chip is more powerful than the older, standard Power4 chip, which still sits in the high-end pSeries systems. IBM has decided to give the one- to four-processor p630 a boost with the chip, as it tries to apply more pressure to rival Sun, the leader in the low-end Unix market.

The p630 is one of the pSeries systems that IBM offers with both of its own AIX version of Unix and the Linux operating system. Users can run Linux as the main operating system or in a partition on AIX. IBM says that it hopes the p630 will be one of the key systems in its battle to unseat Sun.

HP also competes in this market. The p630 with the new chip will be sold with one, two or four processors. The system starts at $19,025. www.ibm.com

■ **Veritas Software** has enhanced its back-up software for large businesses with a variety of new features that increase the software's recovery capability.

The company last week added a feature pack that contains an instant-recovery option to NetBackup. The option lets users retrieve data directly from disk rather than tape. Veritas also has added the ability to archive and migrate Microsoft Exchange messages and attachments, and retrieve them in an orderly fashion.

Additionally, the company has introduced new tape-management and reporting capabilities for tapes that have been transported off-site for disaster-recovery purposes. NetBackup works on Windows, NetWare, Linux and Unix servers. The feature pack is available now, and is priced starting at $5,000 for Windows and Linux. A version for Unix is priced at $10,000. www.veritas.com

Q & A

Cisco exec talks up IP telephony ROI

Don Proctor, vice president and general manager of Cisco's Voice Technology Group, is responsible for the direction of the company's convergence products and strategy. Last month at the VoiceCon show in Washington, D.C., Proctor spoke with Network World *Senior Writer Phil Hochmuth about why businesses should invest in IP telephony and about Cisco's voice road map.*

What is the return-on-investment case for IP telephony?

ROI is the thing that matters most right now. ... While the ROI that can result in a 10% decrease in IT staff costs [as a result of simplified adds, moves and changes with IP telephony] can be a good business decision, it's also very interesting to look at the ROI that could be achieved by just a 2% increase in the productivity of end users. The notion here is that total-cost-of-ownership [TCO] savings has become table stakes.

This boils down to measuring infrastructure investment. This includes TCO, of course, but it also [includes] looking at things like ... How can you get better asset efficiency on what you already have in place today? What's the value in your company of preserving multiple options in the future? Should your business be in some state of transition?

While small and midsize firms are using IP telephony more, what are the barriers for widespread rollout in larger companies?

People are still getting comfortable with the technology. One of the biggest barriers to deployment today comes down to a skills issues in many cases. [Customers] are still building the experience level and skill level to be comfortable with [IP telephony]. People who come from a traditional voice background may feel they are facing a number of unknowns. In most cases, [traditional voice] professionals don't realize how much of their voice experience can be leveraged in this new world of converged networks.

For our part, Cisco will be introducing a new professional certification program focused specially on IP telephony. When I talk to customers about the divide between traditional voice background and the IP telephony background, many don't realize that [approximately] 54% of the engineers who build voice products at Cisco come from a traditional voice world.

Many competitors are migrating from Windows-based servers toward Linux and real-time operating systems for their IP BX products. Are any changes on the horizon for the Cisco CallManager IP PBX software, which is Windows-based?

We've got customers who are passionate in both of those camps [Windows- and Linux-based IP PBXs]. We have customers who are very committed to Windows as their enterprise application infrastructure and are going to stay with it. We also have some customers who would prefer a Linux-based appliance model for an IP PBX, and it is likely that we will have future variants of CallManager that are based on that model.

Are there advantages in having one or the other?

The consensus is that [there isn't] ... We have an architecture we've built around [IP telephony] security that we call SAFE — the SAFE architecture for IP telephony, which includes components like intrusion detection, firewalling, encryption, authentication, all the factors that make up good net hygiene. This architecture can be applied to secure any type of system [whether it be Windows, Linux or Unix].

If securing IP PBXs is the same as securing other application servers, how should users secure the voice traffic itself?

The typical case is that people use some kind of VPN application. The softphone is a good example. When I'm in a hotel that has a broadband connection, what I do is connect to the network and start my VPN client, get my encrypted secure tunnel to the Cisco network. Then I start the softphone, [and] then I'm able to get the same voice services that I have in the office. That model is the one we do most typically.

Is it the most efficient?

It certainly delivers the right combination of convenience and privacy. Is it the most efficient? Well, you have a tunnel, so there's an extra header on there, but as a practical matter, it isn't a huge issue.

What are Cisco's plans to support Session Initiation Protocol [SIP] natively on CallManager?

Certainly SIP has a very vocal following. I'm bullish on SIP. I think it holds a lot of promise for the industry. ... We [probably] ship more SIP [products] than any other vendor with our [phones, softswitches, SIP-enabled firewalls and gateways]. We will have more SIP functionality coming into more products over time. The real promise comes with embracing what I call the Tao of SIP, and that is not only embracing the protocol, but accommodating that sort of fully distributed paradigm of the sip architecture. ... We will see a SIP-based call manager [soon].

IP telephony vendors, including Cisco, are starting to offer solu-

See Cisco, page 18

TOLLY ON TECHNOLOGY

Kevin Tolly

Thy vendor oath: First, do no harm . . .

Dating back to the time of Hippocrates in 400 B.C., physicians have sworn and endeavored, above all, to avoid having their actions make a patient's condition worse. Perhaps it's time to ask your network infrastructure vendor to swear to the same oath. While cranking out new products and features, some vendors are appalling in their disregard for pre-existing users.

What happened to me illustrates the point.

In the cross hairs, specifically, is Linksys — ubiquitous provider of all things wireless to the small office/home office (SOHO) and small- to midsize-business markets. Given the relatively "high" functionality and the relatively low price, I bought a multifunction Linksys router to handle my SOHO broadband connection.

The company has done measurable harm to its customers by providing the product with a miserable firmware upgrade implementation. It is so crude and so poorly documented that many users have no doubt fallen into its black hole.

My particular router also integrated firewall, Dynamic Host Configuration Protocol (DHCP) Server, wireless and print server support. Quite a package. And it worked most of the time. When used regularly by three or four PCs that would hop online and offline, though, the unit periodically would freeze up. Sometimes this would happen once a day and other times once an hour. Either the router would stop routing or the DHCP server would stop serving up addresses.

In any case, a walk over to the router and a power-cycle would "resolve" the problem. And in a few minutes, we'd be working again — until the next freeze.

Having become tired of this behavior, I checked the Linksys support site. Sure enough, upgraded firmware was available for my box.

After downloading the ZIP file, I was instructed to run the Linksys TFTP client, and whoosh, my unit was updated.

I rebooted it, and — you know where this is going — it no longer worked. Yup, without warning, without a prompt, the firmware upgrade had simultaneously wiped out all my configuration information. Gone were my IP address, PPP over Ethernet setup, DSL service userID and password, firewall config — everything. I then spent the next hour or so cobbling the system back together. Fortunately, I suspected that this might happen and had made sure that I had all the config information available.

So what could Linksys have done better?

For starters, there's no reason why a firmware upgrade should destroy the system configuration. Just a few weeks ago, I needed to upgrade an HP 2524 low-end switch. The upgrade employed a similar TFTP approach — but the configuration was unaffected.

Given the market Linksys is targeting, where technology skills might be hard to come by, a user-friendly, idiot-proof upgrade procedure should be mandatory.

Linksys should let users save their configuration settings to a text file. That, at least, would assist customers in reconfiguring the device post-upgrade.

Putting a label on the device with its default IP address wouldn't hurt either. It is possible to find that information on the Linksys Web site but — with your router down and your broadband connection unavailable — "you can't get there from here" (to paraphrase an old New England joke).

And of course, it would take only a few minutes of programming time to display a warning in the window of the pathetic TFTP client Linksys provides.

In fact, the only reference I saw to this firmware issue was in the last paragraph of an article in the Linksys Knowledge Base.

Vendors should fix situations like this one and customers should complain loudly until they do.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Manasquan, N.J. He can be reached at ktolly@tolly.com.

Q A

Cisco

continued from page 17

tions for running voice over 802.11 technology; are you seeing any customer interest in Wi-Fi IP telephony?

Absolutely. It's the same value proposition that people see in Wi-Fi for data networking — mobility in a campus environment and the ability to have your communications portal wherever you are, irrespective of location. Its not uncommon around Cisco offices — and admittedly we are a bunch of geeks — to see people walking around with [Compaq iPaq PDAs] with 802.11 cards, running our softphone software. When someone gets a call, their iPaq rings.

Do the network challenges associated with 802.11 — such as security or the fact that it's a shared network — become compounded when putting voice over Wi-Fi?

The fundamental issues are the same issues we face when transmitting data [with Wi-Fi]; you've got to have authentication, and you've got to have privacy. ...Stay tuned for more on that topic. We're very interested in this kind of marriage of Wi-Fi and IP telephony.

Cisco works with handset makers in the Wi-Fi market, such as Spectralink and Symbol. Are you looking to expand those kind of relationships with other handset makers or release your Wi-Fi IP telephony handset?

All I can say at the moment is, stay tuned for more news there. ■

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*[illegible] Computer Virus Prevalence Survey 2000 (www.ICSA.net). †The Observer, January 13, 2002 (www.observer.co.uk/Print/0,3858,4334388,00.html). ‡IDC Bulletin '02

Enterprise Applications

■ PORTALS ■ MESSAGING/GROUPWARE
■ E-COMMERCE ■ SECURITY
■ NETWORK MANAGEMENT ■ DIRECTORIES

Short Takes

■ **NetIQ** last week released Version 2.0 of its year-old **SQL Management Suite,** with new features including a revamped user interface in one module and additional reporting tools in another. NetIQ's SQL Management Suite is intended to ease administration of Microsoft SQL Server production systems by providing configuration management, diagnostic and recovery functions. An interface redesign in DiagnosticManager will display problems in to-do list format and offer one-click access to deeper diagnostic information. Administrators will be able to share lists and collaborate on changes. The suite's ConfigurationManager component, which tracks hardware and software changes, now includes several reports covering server properties, replication settings, database security and SQL Server job scheduling. Pricing for the full suite starts at $15,000 for a five-server starter pack. A standard edition, which does not include the suite's AppManager module, is priced at $7,500 for a five-server starter pack. Several of the suite's modules also can be purchased individually. DiagnosticManager and ConfigurationManager are available for $800 per server. www.netiq.com

■ **Macromedia** last week said it has folded **Presedia's** online presentation tools into its product portfolio and is launching them as **Macromedia Breeze.** Web development software maker Macromedia last month acquired Presedia, a maker of a tool that converts PowerPoint presentations into Macromedia Flash presentations for easy online distribution. Presedia's Express Trainer is now called Macromedia Breeze Training, and Presedia's Express Presenter is now Macromedia Breeze Presentation. The Training product is a complete electronic learning package, while Presenter is for the corporate user to create, deliver and share online presentations, Macromedia says. Pricing for Macromedia Breeze Training starts at $12,500, and Macromedia Breeze Presentation at $10,000.

In Site: Lessons from Leading Users

Web site warrantee

Altaworks tunes AAA's Web site to keep the auto giant's apps running smoothly.

■ BY DENISE DUBIE

When it comes to gauging Web application performance, timing is everything to Steve Herrington.

As database systems and Web integration manager at American Automobile Association (AAA) Missouri, Herrington needs to know why, where and when application performance goes bad. In the past, Herrington and his staff would scramble to aggregate performance metrics collected from different servers and then pour through the logs to try to find the event or alarms that ultimately would lead back to the exact time when an application started to degrade.

"We didn't really have a lot of monitoring capabilities that could pinpoint what went wrong down to a specific time across different servers," Herrington says. Because the AAA Missouri Web site serves 1.1 million AAA members in Arkansas, Missouri, Louisiana, Mississippi, southern Illinois, southern Indiana and eastern Kansas, he needed to guarantee high availability and fast-responding applications.

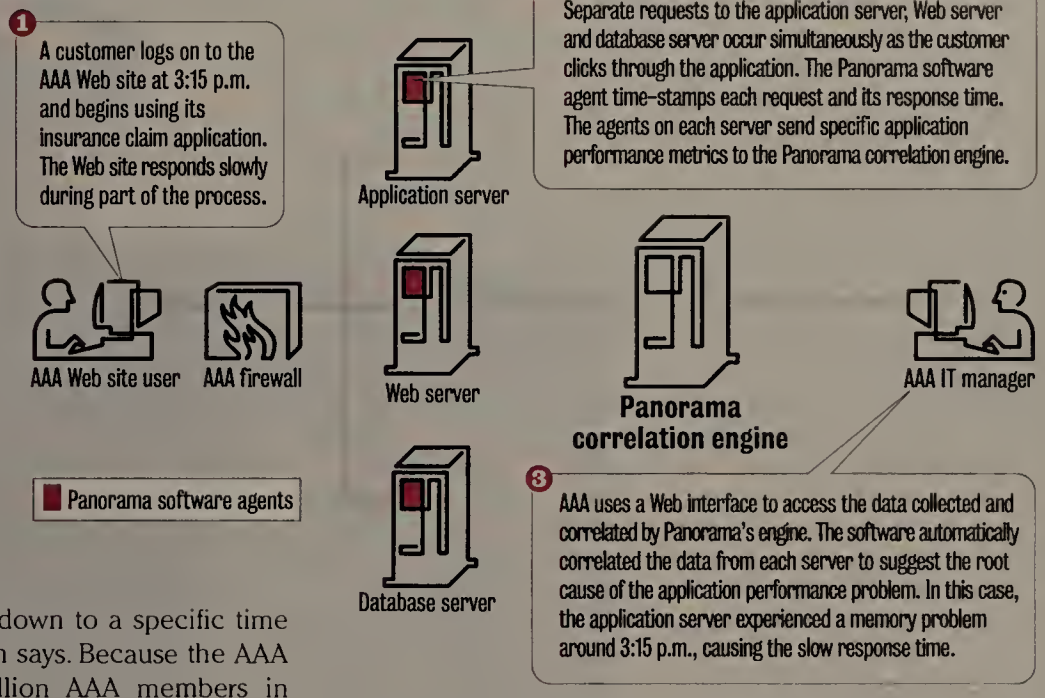
"We start getting into the loss of potential business when the site is even down 15 or 20 minutes," Herrington says.

Herrington decided late last year that he needed help from software that would pinpoint and correlate the exact time that

See AAA, page 24

Making A's in Web site performance

Auto insurer AAA deployed Altaworks' Panorama 3.0 Web application management software to correlate performance problems and prevent Web downtime.



Patch mgmt. tools on tap from Shavlik

■ BY JOHN FONTANA

ST. PAUL, MINN. — Automating will be the prevailing theme next week when Shavlik Technologies releases the first major revision of its patch management product for Microsoft software.

For customers, patch management, vulnerability assessment and remediation, and configuration management are all part of a corporate defense they are building. For example, last month's MS-SQL Slammer worm exploited a flaw in SQL Server that Microsoft identified and issued a patch for in July 2002. Gartner reports that more than 90% of security exploits are carried out through vulnerabilities for which there is a known patch.

With HFNetChkPro 4.0, Shavlik is introducing automated find-and-fix features that control what machines are scanned and how patches are deployed, and that track the success of patch installation for each server. (See review, page 36.) The software can autodiscover machines missing critical patches, and then push the patches out and install them. Shavlik also has added templates that let companies customize scans for patch assessment by groups of servers or products. HFNetChkPro 4.0 also includes tools to assess the vulnerabilities that new patches address and to foster collaboration between administrators.

"Shavlik is proving it has the vision in terms of where the market will go and the company is moving and moving quickly," says Eric Hemmindinger, an analyst with Aberdeen Group. He says corporations are looking to build "vulnerability remediation," which includes "everything you can solve by installing software and changing configurations."

Shavlik's challenge now is to expand its product to handle more than just security patches and Microsoft products, and to add a configuration management component.

"Our next plan is to cover products that live on the Microsoft [operating system], such as Lotus Domino," says Mark Shavlik, CEO of Shavlik. "Later this year we will also start to support Unix and Linux platforms." Shavlik says the company also is working

See Shavlik, page 24

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'NET INSIDER
Scott Bradner

Making the worst of a bad situation

It is quite amazing how companies can compound a difficult situation by punishing the innocent and then pointing proudly at the demonstration of their inability to rub two neurons together when it comes to figuring out the impact of their actions.

Apparently sometime in early February, credit card companies learned that someone had grabbed as many as 8 million credit and debit card account numbers from a small company that processes card transactions for mail-order and Internet vendors.

News reports did not pinpoint just when the information theft happened. At first the card companies seem to have kept the news secret, but in mid-February they told at least some of the banks that had issued the cards. The card companies told the banks that there had been no suspicious activity on any of the cards and that they were monitoring card activity closely just in case.

After a few days of secrecy it came out that the company was Data Processors International of Omaha, Neb. While the terms "security" and "privacy" do not appear on Data Processors International's home page, the company does brag about its "super secure server network" on an inside page. I guess that it has been empirically determined that "super secure" is not enough in some cases.

If an Internet-based computer hacker did the theft, as the reports have it, then anyone who uses this company should ask just why these records were on an Internet-accessible computer.

The card companies seem to have acted about as well as one could expect. When they learned of the theft they checked for suspicious activity and informed the issuing banks. Maybe they could have informed the banks sooner, but at least they did inform them.

Most of the banks also behaved quite well. Many of them informed their customers but did not panic. There was no reason to panic, because the stolen numbers were known and their accounts could be watched.

But at least one bank seems to have had a brain fart. Rhode Island's Citizens Bank deactivated more than 8,000 of its customers' cards just before a weekend. A bank spokesperson said it was to protect the customers.

Let me understand this: Credit card companies have policies that eliminate all customer risk, such as customers not being liable for unauthorized charges, and the card companies reported that there had been no suspicious activity with any of the stolen cards. Just what was the bank protecting its customers from when the bank made it impossible for the customer to use their cards to do things like buy groceries.

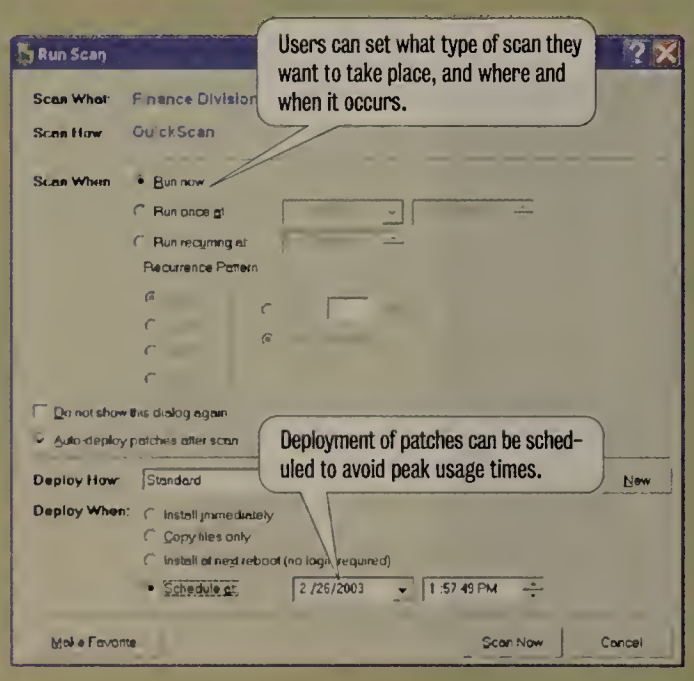
A bank that cannot think any better than this will not get my business but could be a valuable case study in what not to do if you have any interest in your customers.

Disclaimer: The Harvard B School does use case studies for teaching, but this one would not be believable — who could be so dumb — so its my own lesson.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Find and fix

Shavlik Technologies' forthcoming HFNetChkPro 4.0 lets administrators automatically scan for missing patches and deploy them where needed.



Shavlik

continued from page 21

on plug-ins for Microsoft Systems Management Server and IBM's Tivoli management platforms.

HFNetChkPro 4.0 introduces drag-and-drop patch management through which administrators can select a group of computers or IP addresses, drop them on an icon that represents a rule such as search for a particular patch and install it if it is missing. The tool works in conjunction with Shavlik's new PushPatch Tracker, which shows in real time what is happening on each server being scanned. Previously, HFNetChkPro only had a static console that reported final results.

HFNetChkPro's scanning engine is the same one found in the more manual HFNetChk, which Shavlik developed and Microsoft licensed for free distribution.

While those products are considered rudimentary tools, HFNetChkPro is the corporate version that competes with products from Aelita, BigFix, ConfigureSoft, Ecora, Loudcloud and others.

Shavlik HFNetChkPro 4.0 will ship next week and is priced at $23.75 per server or workstation for 100 managed CPUs. ■

In Site: Lessons from Leading Users

AAA

continued from page 21

application performance started to degrade across Web, application and database servers. He found Altaworks, and the company's Web application performance management software seemed to fit the bill. Herrington also evaluated Wily Technology's IntroScope software, but he says the company didn't offer the time-based features he needed.

Altaworks designed its performance management software, Panorama (now in Version 2.1), to time-synchronize alarms and events across servers. Panorama uses software agents installed on Web, application and database servers to collect performance metrics such as, in AAA Missouri's case, Enterprise JavaBeans' response times, servlet availability, Java Database Connectivity database open and active connections.

The metrics collected on each server are sent to a server running Panorama's correlation software only when a predefined performance threshold isn't met. The correlation engine then compares the time each alarm occurred on all the servers supporting the Web application infrastructure. Network and Web site managers such as Herrington then log on to a workstation, using a Web-based interface, to learn the most likely root cause, or source, of the application performance slowdown or failure.

Upon installation, Altaworks' Panorama discovers the elements in an e-business network. The software then learns the normal behavior of each element that supports Web applications, such as Web, database and application servers. Panorama sets thresholds based on how the application performs under different loads at peak or low-traffic times. Network and Web site managers also can customize the thresholds to alert them of any specific conditions known to their environment.

Jasmine Noel, principal analyst at JNoel Associates, says poor performing applications can cause problems across departments in an enterprise network environment. With applications touching databases, Web servers, switches and end users, network managers are challenged to pinpoint the source of problems. To alleviate those problems for corporate users, small vendors such as Altaworks, Wily, Dirig and Precise designed software that includes correlation features, Java 2 Platform Enterprise Edition support and transaction monitoring, among others.

"Because they initially designed the software to monitor Web and other applications, the vendors do manage to pack a lot of different features into one product at a reasonable price," Noel says. "The bigger guys typically sold those features in separate products and are still struggling to deliver the same capabilities in an affordable tool."

While big management vendors such as Computer Associates, HP and IBM Tivoli might still be improving upon their products, they do have one thing start-ups such as Altaworks need: name recognition. Noel says application management software from the smaller players addresses many customer needs, but without proven financial stability in today's economy the companies could fold or be acquired.

"It's a tough market to be in because you have to prove you will be around for the next five years at least," Noel says.

While the Altaworks' Panorama software is still in its early production deployment at AAA Missouri (the product has been running for about two months), Herrington hasn't performed an ROI study and he could not disclose the amount his organization spent, but Panorama pricing starts at $25,000 for six CPUs. Yet Herrington says Panorama already has changed how he solves performance problems.

"When something went wrong, we would query the server that went wild and try to compare its reaction to what normally happens. It was a very time-consuming process," Herrington says. Panorama helps him be more proactive, he says. "Now the software will show us which server had a problem at a specific time so we don't have to search through the logs and risk downtime." ■

ServiceProviders

■ THE INTERNET ■ EXTRANETS ■ INTEREXCHANGE AND LOCAL CARRIERS
■ WIRELESS ■ REGULATORY AFFAIRS

Short Takes

■ **AT&T** and **Cisco** last week announced an expanded marketing and sales relationship. The companies are working to roll out AT&T's managed data services to customers in the U.S. The companies also will team up on product and technology planning for managed service offerings.

They are collaborating on selling 17 AT&T services, including IP VPN, IP network security, metropolitan optical, metropolitan Ethernet, managed router, managed hosting and voice and data integration services.

■ **BellSouth's Wavelength Service,** unveiled last week, offers enterprise customers in BellSouth territory high-speed point-to-point connections. The service is BellSouth's first offering based on **Dense Wavelength Division Multiplexing.** DWDM uses light beams to create multiple transmission paths on one copper strand. Each beam can support speeds up to 2.5G bit/sec. WaveLength Service will be available throughout BellSouth's Southeast region.

■ Products that support the IEEE's **802.11i** pending wireless LAN security specification likely will not ship for another 12 months, according to an Intel network architect working on the standard. The 802.11i specification is designed to plug all known security holes in the IEEE's 802.11b wireless LAN specification that also is known as Wi-Fi. The 802.11i specification will include a system for creating fresh keys at the start of each session. It also is expected to provide a way of checking packets to make sure they are part of a current session and not repeated packets that a hacker might use. But in the meantime, wireless experts say users still should use Wired Equivalent Privacy to keep wireless LANs as secure as possible.

Better days ahead for telecom?

Industry report predicts steady spending growth through 2006.

■ BY DENISE PAPPALARDO

ARLINGTON, VA. — There might be a light at the end of the tunnel for the U.S. telecom market, despite a seemingly continuous drumbeat of bad news.

Between now and 2006, telecom spending by carriers, consumers and businesses is expected to grow at an annual compound rate of 9% — from $681 billion to $963 billion — according to the 2003 Telecommunications Market Review and Forecast, which the Telecommunications Industry Association (TIA) issued last week.

While the industry will not soon return to annual growth rates of 15% seen in 1999 and 2000, steady growth is expected, says Arthur Gruen, chief economist on the TIA report and a principal at consulting firm Wilkofsky Gruen Associates. The telecom market expanded by only 3.5% last year and in 2001.

But the telecom market is on the rebound, Gruen says.

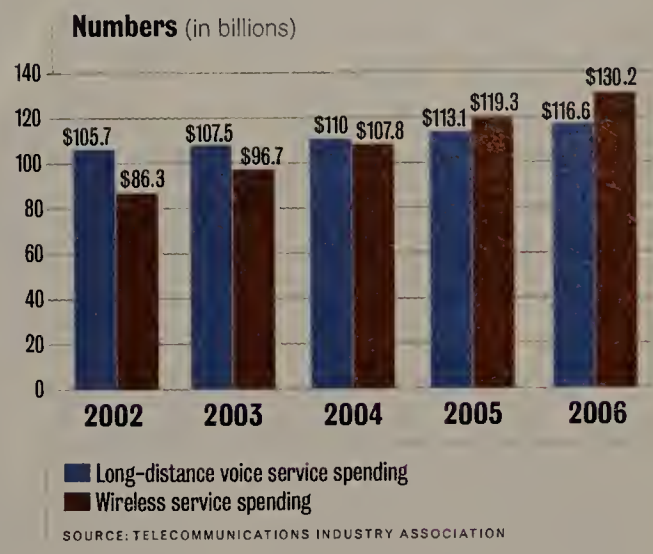
One of the biggest drivers contributing to growth will be high-speed Internet-access services, Gruen says. Although the FCC last week handed down a controversial order governing broadband, the ruling was a "positive" move for incumbent local exchange carriers (ILEC) because they will not have to share new broadband network deployments, says Matthew Flanigan, president of TIA.

The ruling is expected to spawn new DSL and even fiber-to-the-home deployments, according to some industry experts.

About 5.8 million DSL users today spend $5.7 billion on the broadband service. Those figures will nearly triple in the next four years, according to the TIA report. In 2006, there is expected to be 15.3 million DSL users who will spend $14.5 billion on services.

Wireless to win the race

Wireless service spending is expected to exceed long-distance voice spending by 2005.



SOURCE: TELECOMMUNICATIONS INDUSTRY ASSOCIATION

While TIA expects DSL to continue to grow, cable modem services will still lead the broadband market in 2006 with more

See Telecom, page 27

Broadwing sale ends rough flight

■ BY DENISE PAPPALARDO

The fanfare with which Broadwing was launched three years ago was but a distant memory last week as the company announced the sale of its broadband division for a bargain-basement price.

TV commercials featuring Dennis Hopper and images of swooping hawks heralded the company's debut, but last week a straightforward press release announced that investment firm C III Communications is buying Broadwing for $129 million. In 1999, local exchange carrier Cincinnati Bell acquired long-haul carrier IXC Communications for $3.2 billion. The merged company changed its name to Broadwing.

C III is not only acquiring the old IXC but also the much-expanded fiber-optic network that Broadwing created.

The cost of that buildout and maintaining a business that generates little cash on its own led to much of the carrier's financial troubles. Last year Broadwing used $39 million in cash beyond its revenue to run its business. This is cash that came from sister company Cincinnati Bell. With debt totaling $2.5 billion due this year and next, changes were necessary.

C III is an investment firm that since its inception last year has acquired a wireless tower management company and cable service provider assets. The firm is acquiring Broadwing's nationwide 18,700-mile fiber-optic networks, 1,000 corporate data and 150,000 voice customers, the Broadwing brand and an undisclosed amount of debt.

Broadwing calls this a "sale in place," which essentially means that Broadwing's operations will not change. C III is expected to keep all the carrier's 1,100 employees.

It became clear to industry watchers late last year that Broadwing would have to make changes to avoid bankruptcy. In October the company announced it was reorganizing its broadband division, which included letting 500 employees go and selling its wholesale voice business.

Selling Broadwing was the best move because it will create value for Cincinnati Bell while bringing in some cash, says Tom Oshea, chief of staff at Broadwing. "The transaction will be transparent to employees and customers," he says.

Industry experts are not so sure.

"Any time the assets and customers are sold, the potential for severe disruption exists and enterprises should take precautions," says Lisa Pierce, an analyst at Giga Information Group. ■

More online!

Get more details on how Broadwing was trying to deal with financial foes.

DocFinder: 4549

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Implementing IP telephony: What to watch for

EYE ON THE CARRIERS

Johna Till Johnson

Regular readers of this column will be familiar with my view that when it comes to IP telephony implementations, the devil's in the details. Last fall, we talked about how to craft a credible cost-justification (hint: If you're hoping to justify IP telephony based solely on WAN cost savings, you might be in for a rough ride). Now it's time to take a look at some of the critical operational issues.

Many of these observations come from an excellent birds-of-a-feather session I attended at the recent VoiceCon conference in Washington, D.C. If you're interested in IP telephony, there's no better conference. Next year's is in Orlando — check out the Web site at www.bcr.com/voicecon.

The best part of this session was the comments from end users. (It's amazing what you can learn when the "experts" shut up and let the users talk). Lessons learned include:

Don't neglect quality of service (QoS). IT executives at several large companies stressed the value of taking the time to perform a QoS assessment upfront.

Start by benchmarking your existing network performance (I gave some pointers for doing so in last week's column — www.nwfusion.com, DocFinder: 4557).

Then put in place a framework for implementing QoS. Decide where the packets are going to be marked and how the network will process them.

Test your scenario exhaustively before deployment. Approaches that work perfectly on paper might fail to perform in a real network.

And most importantly: If you're just beginning to consider an IP telephony implementation, make sure you budget for the QoS assessment piece. Several folks commented about the difficulties they'd had in getting their organizations to agree to spend time and money on the QoS assessment.

Plan for power. One of the biggest concerns expressed had to do with ensuring uninterruptible power to the IP telephony infrastructure. This is harder than it sounds.

Sure, installing uninterruptible power supplies and back-up batteries is a no-brainer — but have you thought about deploying a management and monitoring system for the power elements? How often will you be replacing batteries, and at what cost? Several folks reported that because of form-factor changes and upgrades, they needed to completely replace batteries and power supplies every two to three years.

Whether you do this yourself or outsource the service, it's a significant cost, so be prepared.

Set a support strategy. As we've discussed previously, service and support can be the Achilles' heel of an IP telephony deployment, particularly when it comes to value-added resellers (VAR) and systems integrators.

Look for VARs that have a strong relationship with your primary equipment vendor. Also note that the quality of a systems integrator tends to vary by geography — one that performs phenomenally in Illinois might do a poor job in Idaho.

Finally, recognize that all consultants and engineers are not created equal. Ask your VAR to provide bios of specific support engineers — and commit to dedicating the particular individuals you like to your project.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Telecom

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users. But cable modem users don't spend as much as DSL users. In 2006, the report predicts, 16.9 million cable modem users will spend $7.9 billion on services, which $6.6 billion less than DSL users.

The primary reason is that cable modem services, on average, cost less than DSL. The average monthly fee for DSL today is about $80. The average monthly fee for cable modem service is about $43. The average differs so greatly because there are many more business-grade DSL offerings, which cost more than consumer services, than there are business-grade cable modem offerings.

Traditional wireless, wireless LAN, VPN, Gigabit Ethernet metropolitan services and IP convergence offerings are expected to drive growth, according to the report.

And although long-distance voice service growth is expected to remain at 2.5%, users simply are spending their dollars elsewhere. Wireless voice and data services are expected to grow at a healthy rate and even surpass long-distance voice by 2005.

Business and residential users spent $86 billion on wireless services last year. That amount is expected to jump to $130 billion by 2006. Not only are existing users expected to spend more on wireless services, but nearly 30 million more users will go wireless. There are expected to be 218.5 million wireless subscribers by 2006.

While wireless voice still will dominate, mobile Internet subscribers are expected to nearly triple by 2006. According to the report, there are 24 million wireless Web surfers. In four years, that number is expected to total 64 million.

While traditional data services such as frame relay, ATM and private line still have a steady following, more businesses are turning to VPNs to meet their corporate network needs.

Last year users spent $11.6 billion on VPN equipment and services, according to the report. In 2006 that number is expected to nearly double with users spending $21.3 billion on VPN equipment and services. ■

Special Focus

DSL: Workplace adoption mixed.

DSL penetrates the business market . . . slowly

■ BY MICHAEL MARTIN

Many early providers of DSL disappeared during the telecom meltdown, but the technology has continued to evolve and grow in popularity.

Double-digit subscriber growth is still the norm for most U.S. providers (see chart). And new DSL flavors, such as single-pair high-speed DSL (G.SHDSL), which is beginning to appear, might make DSL more popular with business users.

The truth is that while overall DSL numbers have exceeded analyst expectations, DSL adoption by business users has been disappointing. At the end of the first quarter of 2002, only 23% of the about 4.9 million DSLs deployed in the U.S. were business class, according to TeleChoice.

There are several reasons for DSL's disappointing performance in the business market, says Matthew Davis, an analyst with The Yankee Group. One major hindrance has been the plummeting price of T-1 lines. T-1s have become so inexpensive, Davis says, that in many cases there isn't enough of a pricing difference between a T-1 and a business-class DSL for a customer to justify switching to DSL.

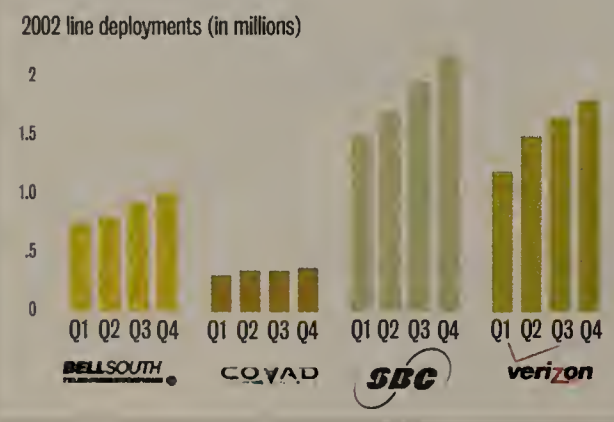
A second hurdle is cable burrowing its way into the business broadband market.

"Our surveys show that more and more businesses are using cable, even though the cable companies say they're providing a mostly residential service," Davis says.

Davis estimates that as many as 650,000 businesses were using cable broadband services by the end of last year.

Surging ahead

U.S. providers continue to report robust DSL deployment numbers.



More investment needed

While DSL numbers still are growing, Davis says the technology could be more successful if incumbent providers such as BellSouth, Qwest, SBC and Verizon spent more money on upgrading their digital loop carriers to become broadband-capable.

Digital loop carriers are extensions of carrier central offices used to provide voice service to customers located in outlying business or residential areas. Because digital loop carriers originally were built to offer voice service, they need to be upgraded or replaced to support broadband.

Despite DSL's difficulties, the technology is finding its way into the enterprise business market. Some companies use the technology to support work-at-home programs. Others use it to connect remote offices to a central headquarters.

A Miami company called For Eyes Optical began moving to a DSL network for its 140 nationwide stores about a year and a half ago, says Shuieb Khan, For Eyes' IT manager. Before setting up its broadband network, For Eyes used on-location sales databases at each store and pulled data from the stores back into corporate headquarters over dial-up connections.

> **"A lot of early problems with DSL were related to installation issues, and those are largely gone. Once DSL is up and running, it tends to work pretty well."**
>
> **Matthew Davis**
> Analyst, The Yankee Group

When Khan joined For Eyes, he decided to install broadband connections at each store and switch to a centralized sales database, accessible through a thin client interface at each store. This way, he says, For Eyes could maintain purchase histories for customers if they use a different For Eyes store.

"If you buy glasses in Chicago, then move to a different area, you can now go to another of our stores and there will be a record of who you are," he says.

Cost was primary consideration

Khan decided to use DSL instead of frame relay, because of the cost.

"Frame would have been about four times the expense," he says.

Khan selected MegaPath Networks as his DSL provider because MegaPath offers a national managed service. MegaPath can get national coverage because the company has agreements with all the major DSL providers, and several cable and frame relay providers.

"I could have gone with AT&T, Sprint or Verizon," Khan says. "But the installation time frame would have been much longer, or different, because each of them could only do certain stores."

So far, Khan has 86% of his stores on broadband connections. He says he hasn't had any major service issues.

Khan says his first choice for a DSL connection is symmetrical DSL (SDSL) because it offers business-quality and symmetrical speeds ranging from 128K to 1.5M bit/sec. If SDSL is not available in a given area, ISDN DSL is his second choice. It doesn't offer the speed variations that SDSL does, but it still offers consistent 128K bit/sec bandwidth.

Asymmetrical DSL (ADSL) is the last option. Khan lists it as his lowest preference because speeds on ADSL vary depending on how many users are on the DSL network.

In a few locations of its store, For Eyes is using frame relay or cable modem links where DSL is not available.

At its headquarters site, For Eyes has two T-1 lines, each from different providers for redundancy. Traffic on the network travels from the customer premises to MegaPath's metropolitan-edge routers, and from there it is transferred to MegaPath's private national network.

NetScreen Technologies routers at each site and ensure security on For Eyes' network, Khan says. For Eyes currently uses NetScreen 204 routers, but is upgrading to the 500 series because the 500 includes a built-in firewall.

Dan Foster, vice president of sales and marketing for MegaPath, says the company has a number of retail and insurance customers using MegaPath to connect small locations across the country. Some of those customers are using DSL to upgrade from slower dial-up connections. Others use it to save money on frame relay services, he adds.

Yankee's Davis says customers who want to use DSL as a frame relay replacement don't need to be as concerned about a drop in the quality of service as they might have been in the past.

"A lot of the early problems with DSL were related to installation issues, and those are largely gone," he says. "Once DSL is up and running, it tends to work pretty well."

It also helps that DSL providers have added network monitoring alarm and management tools that let them offer better-quality services, Davis adds.

Technological advances on the way

More good news should come this year in the form of new DSL equipment, Davis says.

The ADSL2+ standard, which the International Telecommunication Union finalized earlier this year, will let DSL providers boost bandwidth on DSL up to 20M bit/sec to a range of 8,000 feet from a central office. That kind of speed would enable video services. Very-high bit rate DSL also offers speeds fast enough for video, but there still is a lot of debate about VDSL's modulation, Davis says.

Another good sign is that G.SHDSL equipment finally is shipping, Davis says. G.SHDSL customer premises gear has been available for a while, but equipment vendors have only recently begun reporting sales of G.SHDSL carrier equipment.

G.SHDSL offers symmetric speeds of up to 2.3M bit/sec, and unlike SDSL, does not interfere with ADSL technology.

Also, unlike SDSL, G.SHDSL is a recognized standard.

"If I were a regional Bell operating company and I saw the cable providers aggressively marketing to my customers, I'd start pushing G.SHDSL," Davis says. "ADSL is roughly equivalent to cable, but G.SHDSL would give the phone companies an edge." ■

Net.Worker

■ PRODUCTS, SERVICES AND STRATEGIES FOR TYING TELEWORKERS TO THE ENTERPRISE

SSM Health Care uses virtual call center

■ BY TONI KISTNER

ST. LOUIS — Medical call centers are a mixed bag. Some hospital systems have huge facilities that serve multiple hospitals; others have a small center that serves only one. Some handle internal inquiries only. Some are staffed with nurses who dispense symptoms-based advice; others are staffed with health information specialists, who typically perform class registration and physician referral. But nearly all operate in a traditional brick-and-mortar facility.

SSM Health Care's (SSMHC) call center is an exception. The St. Louis facility handles after-hours triage for 31 pediatricians in six area hospitals and manages help-line calls for four managed care firms. Two years ago, upon relocating to a new office, SSMHC's three night-staff nurses voiced fears about working alone on a largely empty campus. Bob Jaeger, director of SSMHC's health and wellness line, first considered installing more security cameras, even hiring additional security personnel, but the call center couldn't afford it. Then Jaeger learned the corporate office had added a Siemens Telework Server to its existing 9006 PBX so workers there could take calls at home. He decided to give it a try.

Today, 11 staffers work half their shifts at home, and plans to send another six are in the works. Jaeger and his nurse supervisor work from home part-time, and Jaeger's goal is to send everyone home permanently within three years.

Jaeger's enthusiasm mainly stems from his employees' increased productivity. But some virtual call-center experts contend call-center employees aren't easily migrated to home offices. Jaeger disagrees: "Nearly every nurse is outperforming what she did in the office. The number of calls is up; the length of calls is down. When there are issues with downtime, people make it up, probably by taking fewer breaks."

Unfortunately, there have been issues with downtime. For telephony, Jaeger has put a Siemens OptiSet handset in each nurse's home. Nurses log on to the Telework Server via DSL or cable. When a call comes in to the Siemens 9006 PBX, the Telework Server routes it to an analog line at the nurse's home. On the data side, nurses connect to the Windows NT network via a VPN, and access a medical call-processing application via Citrix Metaframe.

The Siemens Telework Server rarely drops a call, Jaeger says. However, nurses are sometimes disconnected from the call-processing application during a patient call. He suspects Metaframe or the broadband connections is the problem.

"The staff was winging it," Jaeger says. "Some feared speaking up would jeopardize the whole teleworking program, so they just toughed it out." That meant staff often had to resort to making additional phone calls to access data, or they'd use hard-copy reference materials that might be outdated. "Sometimes it was a week before we'd find out something wasn't working," he says.

To improve communication, Jaeger brought the nurses back into the office 50% of the time. The night-shift nurses come into the office one shift every two weeks. There, staff can exchange hard-copy information, attend staff meetings, and touch base on a host of telework issues.

In an effort to stabilize the data connection, SSMHC is contracting with SBC to set up a private network connection called RLAN. "It will eliminate a lot of the connectivity problems," Jaeger says.

SSMHC's network analyst Tom Clifton isn't so sure RLAN will fix things. "It remains to be tested against the problems we've been having," he says.

Even so, Jaeger remains committed, and philosophical. "This is why we're giving ourselves three years to get the technology up to speed," he says. "If you're doing teleworking in healthcare at all, you're really ahead of the curve." ■

More online!

For more on SSMHC and virtual call centers, read Toni Kistner's Telework Beat column. **DocFinders: 4532, 4533, 4534, 4535, 4554**

Q A

Eaton Vance's security strategy for telework

Like most investment management firms, Eaton Vance walks a tightrope between providing its users with the remote access they need, and ensuring those users don't compromise the network. Vinnie Cottone, vice president of infrastructure services, recently spoke with Network World's *Net.Worker Managing Editor Toni Kistner about his strategy for securing remote workers.*

How do you set up your remote workers?

For most, we provide laptops with our standard configuration plus a VPN or Citrix client, depending on their needs. If users live in the area, our technical staff will travel to their homes to set up their systems. For the out-of-town users, we configure the system on-site in Boston and ship it out. If users want to install any additional services, such as a broadband connection, they must inform us prior, so we can oversee the process and speak with Comcast or SBC about some of our issues. Also, twice annually, we review the users' laptops.

When an employee asks to set up a home net, what do you do?

If it's a wireless scenario, we'll help them configure the wireless router. We'll verify there's a shared key on it, that 128-bit encryption is enabled — that everything isn't dumb by default. Wireless is a security concern for us because we don't know everything that's on these laptops, whether it's corporate or personal information. We're involved in everything from users' cell phones to the deployment of all types of products and services.

What is your biggest security concern?

People installing software that can be incompatible with our systems. I'm not personally fond of desktop firewalls, for instance. They rarely work as they are promoted to. Some products are OK, but some could disable the antivirus protection, which is key, because most of our security concerns are on the virus side of things. If the user got hit with a virus and was connected to the network over a VPN, this could affect the firm itself.

But don't they need a desktop firewall to protect the home network from Internet intrusion?

They might want a firewall to protect personal information, but it makes my job much harder to support them. I'm more concerned about corporate information, which is why we try to keep everything at the office on file servers. But people could have firewalls installed they just haven't told us about.

What technologies do you require or recommend?

For the home network, remote users can buy whatever they want. But I don't think 802.11g should be ratified. 802.11b 11M bit/sec is more than enough for any home user. 802.11a is fine if you want to bring in more and more users. So why not just get an access point that supports 802.11a and 802.11b? What do you need 802.11g for? ■

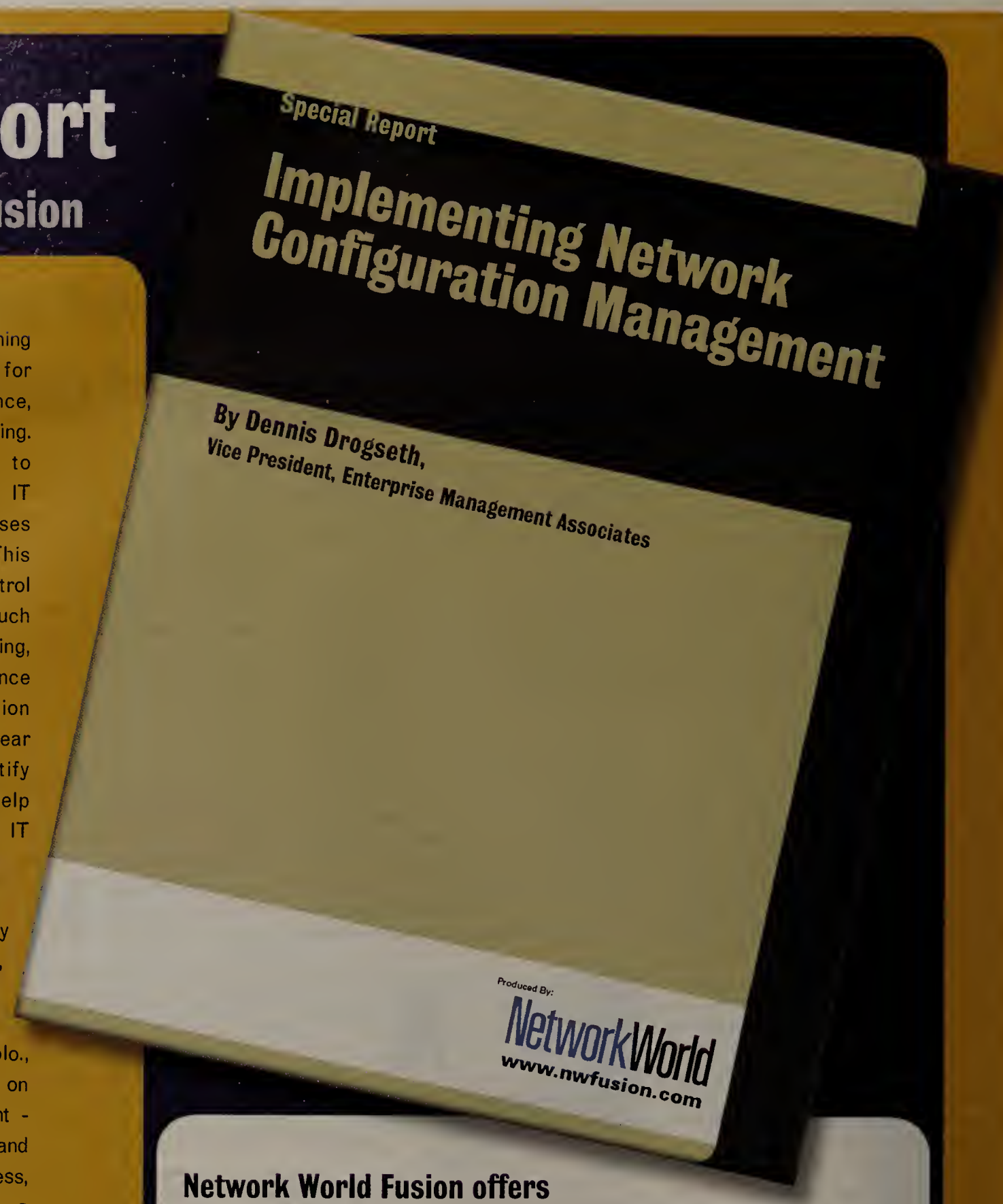
SmrtTakes

■ A study from **Parks Associates** found those users 45 and older comprise more than 40% of U.S. broadband households. "Broadband Access @ Home III," which surveyed more than 10,000 Internet households, found the most significant growth from 2001 to 2002 occurred in the age segment 65 and older, increasing from 5% to 7.5% of U.S. broadband households.

Special Report
From Network World Fusion

Configuration management is beginning to emerge as a cornerstone for effective service assurance, security, and capacity and business planning. A new crop of vendors are beginning to suggest new opportunities for improved IT efficiency leveraging automated processes for managing multivendor networks. This report looks at critical steps for taking control of thorny network configuration issues - such as inventory, planning, deployment, monitoring, reporting and evaluation. It includes guidance on a host of network configuration management issues and it presents a clear model for how to assess and justify configuration investments that can help improve the business value of your IT organization. **Get your FREE copy today.**

This SPECIAL REPORT is authored by Dennis Drogseth, vice president, Enterprise Management Associates (EMA). EMA is a Boulder, Colo., analyst firm focusing on infrastructure management - from networks, to systems and applications, to e-business, storage and security. Drogseth is a contributor to NW Fusion in Network and Systems Management, and frequently writes and speaks on management-related topics. EMA does in-depth research in user requirements, market trends, organizational issues and architectural evolution across the broader management marketplace. EMA also does extensive consulting with IT organizations that seek guidance on management strategies and design, as well as SLA planning. EMA is in dialog with more than 800 ISVs, vendors and service providers across the management market.



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Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

Wi-Fi switching adds wireless control

■ BY MERWYN ANDRADE

Wireless LAN switching centralizes control of access points and wireless switching much like intelligent switching did for the wired world. The technology provides a structured blueprint and centralized troubleshooting tools needed to scale and secure wireless LANs beyond departments and across a corporation.

In the current wireless LAN model, access points act as isolated systems providing 802.11 functions such as encryption and authentication. Wireless LAN switching moves these functions into a switch in order to more simply manage and upgrade large wireless infrastructures. Access points connected to the wireless switch then become Ethernet radios that require virtually no management.

Key to wireless LAN switching technology is the ability to maintain user identity across the wireless infrastructure so services and security can be delivered seamlessly to users or user groups from access point to access point. A wireless user accesses the network by attempting to make an association with the access point that has the strongest signal. That access point is connected to a wireless switch in the wiring closet or data center.

Acting as a repeater, the access point forwards the 802.11 association request to the wireless LAN switch, which in turn acknowledges the request. The wireless LAN switch authenticates the wireless user via the 802.1x protocol — validating user credentials through Remote Access Dial In User Service (RADIUS).

Once the authentication phase is complete, a RADIUS server passes encryption keys to the wireless LAN switch. The client independently derives the keys on his own and begins sending encrypted data.

Use of wireless switches gives network managers the flexibility to mix and match client security capabilities ranging from Layer 3 VPNs to Layer 2 authentication and encryption schemes such as 802.1x, Wireless Equivalent Privacy, Temporal Key Integrity Protocol and Advanced Encryption Standard without having to upgrade or reconfigure access points.

Wireless switches serve as the brains of a wireless LAN system by constantly monitoring air space, network growth and user density, and dynamically adjusting bandwidth, access control, quality of service and other parameters as mobile users roam through the corporation.

The technology is unique in its ability to control each access point's power and channel settings, and store configuration data. For instance, when an access point failure occurs, the wireless LAN switch automatically detects the failure and instructs nearby access points to adjust power and channel settings to compensate. When a new access point is installed, it is automatically discovered by a wireless LAN switch that uploads the appropriate power and channel settings.

Wireless LAN switching technology also can protect against the security threat of rogue access points. When a rogue access point is plugged into the network, wireless LAN switches validate the device with a trusted list of allowed devices, users and user policies. If the switch determines the device is "illegal," it proactively shuts down the rogue access point and automatically alerts the network manager.

With wireless LANs, network managers also face challenges in combining security with mobility. Wireless LAN switching technology integrates mobile IP, a standard that solves roaming issues across IP subnets, while maintaining user authentication state, and transparently reauthenticates users as they move to another access point.

Stateful policy engines enforce predefined rules on a per-user basis. As users move, their policies follow. With these capabilities, network managers can provide some users, such as guests, with only HTTP access, while employees receive access to a wider range of TCP ports and services.

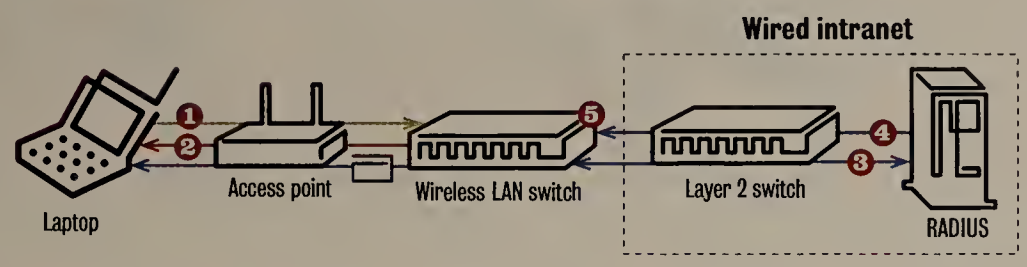
With its roots established in the structured wired architectures of the past, Wi-Fi switching gives IT a similar control model, bringing with it a new way to manage change for enterprise wireless networks.

Andrade is director of technology at Aruba Wireless Networks and is a contributor to the IEEE 802.11i security specification. He can be reached at merv@arubanetworks.com.

HOW IT WORKS

Wireless switching

In a traditional wireless LAN, access points act as isolated systems providing 802.11 functions. Wireless LAN switching moves these function into the switch.



1. Client sends 802.11 association request to a wireless access point, which forwards the request to the wireless LAN switch.
2. Wireless LAN switch responds with association acknowledgement.
3. Client and switch start 802.1x authentication. Switch queries RADIUS authentication server for encryption keys.
4. RADIUS server passes encryption keys to wireless LAN switch. User derives own encryption keys and sends encrypted data.
5. Wireless LAN switch decrypts data and forwards packets based on 802.11 MAC address.

Got great ideas

■ *Network World* is looking for great ideas for future Tech Updates. If you want to contribute a primer on a specific technology, standard or protocol, contact Amy Schurr, senior managing editor, features (aschurr@nww.com).

Ask Dr. Internet

By Steve Blass

Are media access control addresses really unique? Or are there any (maybe cloned?) network interface cards that have the same MAC address as another NIC? What is the probability of having two identical MAC addresses within one network?

The IEEE manages MAC addresses. The hardware identification addresses that the IEEE distributes are unique. That makes the probability of matching MAC addresses zero. On the other hand, some hardware MAC addresses are programmable, which makes them spoofable. This means that it is possible for two machines in the same network to have the same MAC address.

To actually calculate the probability that two or more computers in the same network share the same MAC address, look up 'selection with and without replacement' in an introductory Combinatorics or Probability and Statistics textbook and follow the procedures outlined in the book. You can find network standards information available online at http://standards.ieee.org. In addition to the FAQ files there, the IEEE recently has made the collection of 802 Ethernet networking standards documents available free of charge in PDF format through the 'Get IEEE 802 program' at www.nwfusion.com, DocFinder: 4299.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

Catching up with upgrades

This week we'll catch up on a few upgrades of products we've reviewed in this column.

TightVNC

First, there's an improved version of a tool we loved, the remote control utility VNC (see www.nwfusion.com, DocFinder: 4550). The new version, TightVNC (www.tightvnc.com/), is a direct descendent of the original code.

TightVNC is faster, smaller and more robust than the original, and boasts all sort of enhancements:

- Improved cursor handling so you no longer see slow remote cursor movements that lag behind the local cursor.
- The algorithms for encoding screen data are optimized for slow and moderate-speed connections, meaning they generate less traffic than the standard VNC procedure. TightVNC also supports all the original VNC encodings so it can operate efficiently over fast networks.
- With TightVNC you can choose the ratio of compression and coding speed to match your connection speed and processor power.
- If you don't care too much about image quality, JPEG compression is an option that compresses color-rich screen areas more efficiently than the compression scheme used in the original VNC.
- An improved Java viewer (accessed through the built-in HTTP server, as in the standard VNC).
- You can choose arbitrary port numbers for TCP/IP connections, a feature not available in the original VNC.
- The Unix version of the TightVNC viewer can tunnel connections via SSH automatically using a local SSH/OpenSSH client installation.

There are a lot more changes (see DocFinder: 4545 for the details). But best of all, TightVNC is, like its forebear, free.

Whatsup Gold 8

Another upgraded product is the network management console called WhatsUp Gold from Ipswitch (www.ipswitch.com), now at Version 8 (for a review of Version 7 see DocFinder: 4546).

In this release WhatsUp Gold adds:

- Real-time event monitoring of Windows log events and alert generation. You also can relate device downtime or network strain to a specific event that has recently occurred on the network.
- Selective Discovery, which maps the specific device types you choose to include or exclude rather than performing a "blanket" discovery of all network devices — this can be a real performance improvement in large networks.
- XML and custom map formats for sharing with other applications.
- SMS notification (TAP and UCP — GSM will be added in the future).
- Enhanced NT Service Monitoring adds the ability to restart a failed Windows NT/2000/XP service in conjunction with sending a notification of this service failure.
- SNMP Performance Reports include reports based on data retrieved from SNMP devices.

In short, WhatsUp Gold has been polished and improved. The product documentation and additional documentation is better and, overall, we'd say WhatsUp Gold still is an outstanding value at $795.

Servers Alive

Our final improved product is a tool we can't live without: A network device monitoring system called Servers Alive Version 4 from Woodstone bvba (www.woodstone.nu/), publisher of another of our favorite tools, WS_Ping ProPack (see our write-up at DocFinder: 4547). We reviewed Servers Alive last April (DocFinder: 4548).

The changes in this release:

- Two versions: The Standard version can monitor 1,000 devices, and the Enterprise edition can handle 5,000 entries and adds Open Database Connectivity logging.
- You can select the protocol and port to check rather than the protocol being assumed (for example, if you chose Port 80 the previous version automatically assumed you wanted to check HTTP).
- Each device entry now can have many different alerts associated with it, each with its own settings.

The templating feature for Web page generation is much improved, and you can define any number of customized pages to report on specific devices and/or levels of detail.

This release of Servers Alive is better-organized than the previous version and is also better-looking. At $100 for the Standard Edition and $180 for the Enterprise Edition, it also is a great value.

Updates to gearhead@gibbs.com.

Compendium

Compiled by Adam Gaffin

Editor's Note: Cool Tools is on hiatus for a couple of weeks. In the meantime, Network World Fusion Executive Editor Adam Gaffin offers up some online sightings:

Reuseless?

Back when I was just a cub technology reporter, I got assigned to the objects beat (ah, sweet polymorphism!). Object vendors would go on and on about the importance of object reuse: You build all these objects and then programmers would reuse them all, and they'd save zillions of hours of time, and productivity would soar, and so Western civilization would be preserved.

Or maybe my memory merely grows golden with age. Because I see now that Wayne Kernochan, who follows programming for Aberdeen Group, writes on the company's Web site that reuse isn't what it's cracked up to be:

"Evidence increasingly suggests that encouraging reuse in today's tool sets is having little positive effect on productivity — and sometimes even a negative effect. The problem, Aberdeen suggests, is that development tools suppliers and users are taking too narrow a view of programmer productivity, mistaking a possible means (reuse) for a goal (faster, repeated delivery of software value-add to the customer). IT buyers should focus on tools that have proven to be able to deliver order-of-magnitude improvements in programmer productivity in particular situations, improve the end result, or speed upgrade of existing programs — such as refactoring."

For the whole report go to www.nwfusion.com, DocFinder: 4540 (free registration required).

A rockin' good wireless net

Toronto's *The Globe and Mail* reports on one sophisticated mobile setup: "140 laptops all with wireless cards talking to a 3Com 11M bit/sec Wireless Access Point 8000 and connected to the Internet via a Hughes satellite link."

Ladies and gentleman: The Rolling Stones! Turns out Mick and company are quite the Wi-Fi users. They use their rollin' network not just for e-mail but for things such as exchanging CAD drawings of the stage at their next venue.

See DocFinder: 4541.

The self-feeding computer

On his technology Weblog last week, computer consultant Roland Piquepaille of Paris discussed work by Israeli researchers to use DNA molecules as computing devices: Because the molecules store the chemical ATP (the stuff that makes your body go), they can power their own "computations," he says. This would give new meaning to the phrase "off the grid," eh?

For more information, go to DocFinder: 4542.

Do as they say, not as they do

Marko Karppinen reported last week that of 429 member companies of the World Wide Web Consortium (W3C), only 6.5% have Web sites that are compliant with all those Web standards the consortium is forever publishing. Still, Karppinen says he's optimistic: That's up from 4.6% in August — the last time he ran the W3C's own validator against member-company sites.

Details can be found at DocFinder: 4543.

MySQL and us

File this under: Best tool for the job.

We love Weblogs here at *Network World*. And we love Moveable Type for building and writing them — it's easy to set up new Weblogs and easy for newcomers to figure out.

But we have a problem: Our initial installation wasn't at all scalable — it ran Berkeley DB on a single server. A few months ago, Senior Reviews Editor Keith Shaw posted what we all thought was an innocuous item about a new Sony CD/DVD player. But that got Linux Ogg Vorbis fans riled up and they deluged Shaw's Weblog with comments. The Weblog server ground to a halt. Not a good thing.

So we started looking at how to integrate Moveable Type with our server farm. The ideal thing would have been to figure out how to use this puppy with our existing Oracle databases. Alas, that would take some programming time, which our busy (and small) programming staff doesn't have.

Fortunately, Moveable Type supports MySQL and, equally fortunately, we have a network guy who knows enough about MySQL to install it quickly. Last week, we made a few changes to the Moveable Type config files, ran its converter, and voilà: Now our Weblogs are SQL-powered. Now to get them into the replication cycle.

Talk about it

Amazon's gotten another patent sure to get some people upset. The company last week won a patent for a system in which it starts an online discussion, then lets people comment in that discussion. You know, like a bulletin-board system, or a Usenet newsgroup or an e-mail listserv.

Follow a link to the patent and discuss it at DocFinder: 4556.

Gaffin can be reached at agaffin@nww.com; read Compendium online at http://napps.nwfusion.com/compendium.

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wireless LANs

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- Integrating wireless LAN management tools with existing network management tools
- Strategies for putting voice and video onto wireless LANs and the effects on network performance
- Choosing access points, software and clients that seamlessly meld wireless with wired networks
- Employing intrusion detection and prevention systems to create a secure wireless network

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opinions!

EDITORIAL

John Dix

FCC: One step forward, one step back

Rather than bring clarity and direction to the troubled telecom sector, the Federal Communication Commission's recent, local competition ruling promises continued uncertainty and, worse yet, litigation.

Let's review the two core issues, unbundling and broadband:

• The main thing the incumbent local exchange carriers (ILEC) were pushing for was relief from the requirement to offer competitors discounted access to core facilities as so-called unbundled network elements (UNE). But the FCC essentially threw up its hands and abdicated responsibility, pushing the decision into the laps of the states, saying it will be up to them to decide what gets unbundled.

While a victory of sorts for the CLECs that resell ILEC facilities, even they have to wonder where this will go. How can the CLECs plan when it is likely that this nondecision probably will give rise to litigation in 50 states? That is, if it even gets that far. Involving the states seems to ignore the fact that Congress and the courts have told the FCC to answer the bundling question. Some ILECs already are saying they'll challenge the ruling on that basis.

If that initial push to kill the ruling fails, then the question becomes, what do the states think about unbundling? Some public utility commissions (PUC) are friends of the incumbent telephone companies and likely will do away with UNE elements, while others are either outwardly antagonistic toward the ILECs or believers in the idea that unbundling is good for competition and likely will maintain the status quo.

Either way, given the financial condition of most states and the fact that many PUCs are stretched thin, it is a poor time to leave this complicated mess at their doorsteps. The upshot: continued uncertainty and doubt, just what the industry needed.

• On the broadband front, the FCC gave the ILECs what they wanted — relief from the requirement to share new broadband facilities with competitors. The ILECs had argued that the only thing keeping them from investing in new broadband facilities was the fact that they have to share that infrastructure with competitors.

While this ruling was bold and the right move on the part of the FCC, it is unfortunate to see some of the ILECs react apathetically, saying they won't build out unless they get relief on the other unbundling issue. Trying to leverage the ruling like this exposes the Bell stance for what it is — monopolistic rhetoric. That ultimately undermines the ILEC's call for regulatory freedom.

— John Dix
Editor in chief
jdix@nww.com

Faring better

John Dix was right to observe in his editorial "WAN carriers rock and teeter" (www.nwfusion.com, DocFinder: 4528) that the long-distance sector is suffering from the lingering economic doldrums, but if one really looks closely at comparable numbers, AT&T Business is faring better than other industry players. Despite a decline in full-year revenue, AT&T took share in every category of business service in 2002 — even voice, for a change.

We continue to invest in our core network; our growth areas of managed, local and global services; and continue to improve our provisioning, maintenance and billing processes so AT&T can strengthen its relationships with enterprise customers and be positioned best among providers to benefit from relationships built on trust and performance when companies resume spending on communications services.

Jim Byrnes
Vice president, public relations
AT&T Business
Bedminster, N.J.

Feeling left out

Regarding "IP storage standard set to roll" (DocFinder: 4529): At the Server I/O 2003 conference in January, I helped configure and set up Adaptec's demonstration. We have demonstrated our next-generation external storage DuraStor product for almost a year, including at Server I/O 2003, and yet your story states: "Only IBM and Eurologic have incorporated iSCSI into their arrays."

I can't understand why Adaptec's achievements and participation at this event did not merit a mention in your story. We have supported iSCSI for a long time. Our involvement in the industry task forces, the Storage Networking Industry Association and plugfests represent a major commitment to the technology.

Christopher Viamonte
SAN applications engineer II
Adaptec
Longmont, Colo.

E-mail letters to jdix@nww.com or send them to John Dix, Editor In Chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

VC fairy tale

Regarding Howard Anderson's column "Self-abuse: Talking to myself" (DocFinder: 4530): Anderson forgot to tell himself the real reason for the telecom meltdown. It was his industry that required these companies to produce fairy-tale capacity promises and projected returns on investments for their projects to be considered for funding. It was greed that installed permanent blinders on the folks who funded all of these companies.

I guess it is easy to put together a business plan for a product and market that are nonexistent and promise the sky. Unfortunately, it robs growth and expansion dollars from those of us in proven markets with conservative, realistic and honest projections.

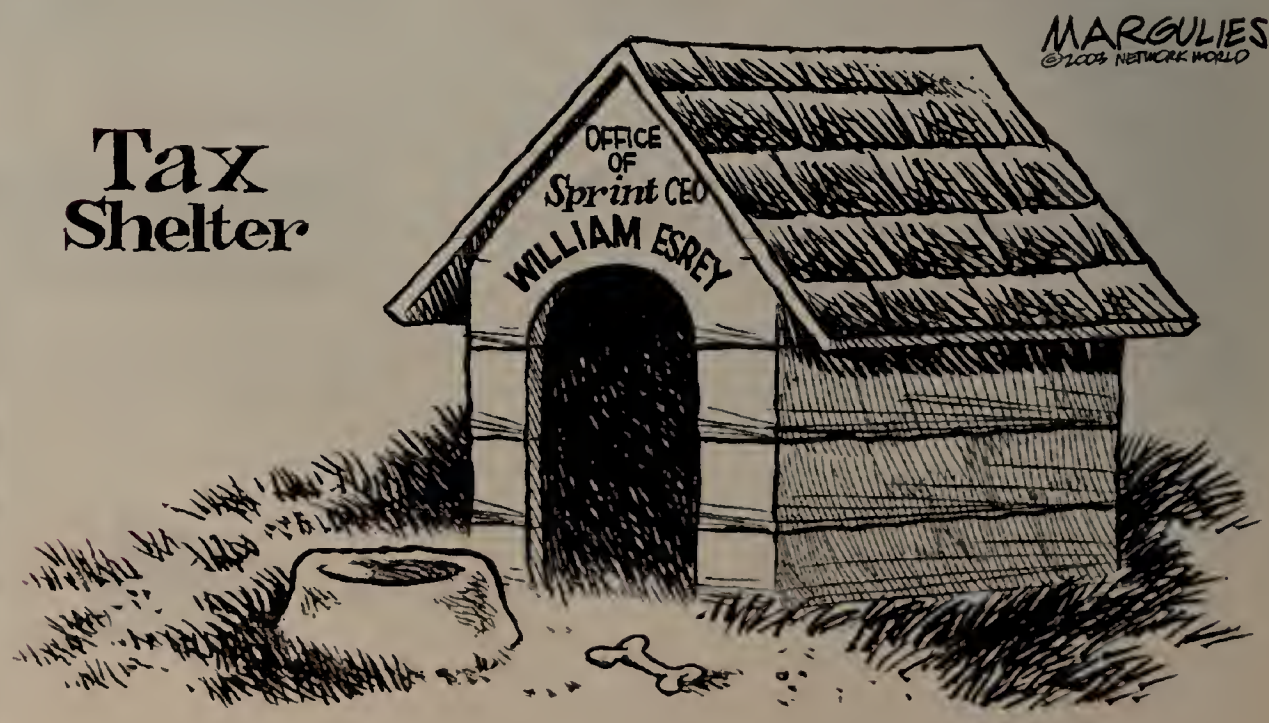
Rudy Socha
Lorain, Ohio

Slammed by Slammer

Kevin Tolly's column "SQL Slammer attack reveals reliability reality" (DocFinder: 4531) is right on the mark. What I don't understand is that so many of us involved with IT management feel the same, yet Microsoft continues to get away with its low, sloppy standards and policy of letting the public do quality control for it. Microsoft's system of supplying patches after yet another bug, flaw or hole shows up is an atrociously inadequate way to service customers.

Phil Ansalone
New York

More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 4521**



WAN ISSUES

Deb Mielke

IP and the WAN: The time is now

With all of the choices corporations have in telecom products, services and strategy, coupled with stringent economic conditions, it's sometimes easier to do nothing than to make a change for the better. The problem with the do-nothing approach is that, although seemingly risk-free and comfortable, it does nothing to accommodate the rapid changes taking place in applications (knowledge management, CRM, supply chain integration and more), storage (IP storage-area networks), and computing and middleware (blade servers and grid computing) — all of which are based on TCP/IP.

Many, if not most, of today's corporate WANs continue to rely on what one might term "legacy" frame relay and/or private-line services. Time-tested and trustworthy, they serve as the backbone for existing internal corporate data communications. And, although IP is used for Internet connectivity and some supply chain integration, companies have been reluctant to migrate internal data applications, let alone their public switched telephone network (PSTN) voice services, to the world of IP.

However, competitive advantage, especially in times of economic and technologic turmoil, can be gained by taking calculated risk. For corporate WANs, perhaps the advantages gained by moving to an IP WAN now are worth the effort and short-term expense, for three reasons:

- Companies that have leveraged IP are realizing significant productivity gains over their competitors. According to The Net Impact Study by the Momentum Research Group last year, U.S. businesses have saved more than $155.2 billion and increased revenue by $444 billion by adopting Internet business products. The study also found that the more such products a company adopts, the greater the return.
- IP WAN products bring back the original "single voice and data applications networking" approach that the PSTN established more than 100 years ago. With the telephone, you can call anyone, anywhere at any time, and transact all the business you want. IP networking cost-effectively brings back this single-network approach, reducing network, operations, management and capital costs. And, with the availability of do-it-yourself and managed VPN offerings, security is not an issue.
- IP WANs are flexible and expandable by their very nature. Frame relay committed information rates, permanent virtual circuits and switched virtual circuits were designed to protect and make more efficient the carrier's network, not yours. As a result, corporate network managers have spent significant time and money learning the intricacies of frame relay to ensure that the service will meet their needs. IP networks, unbounded by the constraints of technologies developed to meet the needs of the 1980s, free applications to meet the requirements of internal and external data and voice communications — from supply chain automation to CRM and e-commerce.

Companies should make their move now to an all-IP network infrastructure. Flexibility, interoperability and ubiquity are intrinsic to IP. Cost effectiveness and simplicity are key features. It might not be time to take big risks, but it is time for IP.

Mielke is a principal with Treillage Network Strategies, a consultancy in McKinney, Texas. She can be reached at dmielke@attbi.com.

Competitive advantage, especially in times of economic and technology turmoil, can be gained by taking calculated risk.

CACHE ADVANCE

Linda Musthaler

Ink fuels the printer wars

You might think that all laser or inkjet printers are pretty much the same, and basically, they are. Manufacturers such as Canon, HP and Lexmark don't make a lot of money on each printer they sell. The big bucks come from selling you supplies such as ink cartridges over the life of a printer. A network printer might cost $3,000 or $4,000 to buy, but the cartridges can add up to more than that over the life of the printer. For the printer manufacturer, the consumable supplies represent predictable recurring revenue at a high profit margin.

But buyers don't always purchase their supplies from the OEM. Some of us are environmentally friendly and buy recycled, or remanufactured, printer cartridges, which often cost less than new ones. This practice is so prevalent that cartridge remanufacturing is a multibillion-dollar business.

Here's where the fight gets nasty. OEMs don't like losing out on cartridge sales, so in about 1996, manufacturers started putting chips in the cartridges that hinder their reuse. These companies claim the chips improve the cartridges' performance by monitoring ink usage and print quality. That might be true, but these chips also make the ink cartridges more complex than they need to be. This has made it difficult for remanufacturers to offer high-quality recycled supplies.

For example, these so-called smart chips detect when a cartridge is empty and mark it as such. Even if the cartridge is refilled with ink, the chip refuses to reset the cartridge's condition as anything other than empty. When you put the cartridge back in the printer, the printer thinks it's empty and won't use it.

The OEMs don't see this as a bad thing. They claim it's for the good of the consumer, because a printing system really consists of the printer and the original cartridge filled with original ink. Anything less than all-original components could produce a lower-quality result, they say.

Hmm, that argument sounds familiar. Wasn't there a recent ruling against Microsoft in which the company's attempt to protect consumers from a "lower-quality experience" was called monopolistic? I'm not sure I see the difference in the case of the chip-protected printers, except that multiple OEMs have acknowledged the practice. While this puts the power of printing into the hands of a few manufacturers, numerous remanufacturers are locked out of the market.

In January, Lexmark tried an interesting tactic to block rivals from refilling its cartridges. Invoking the Digital Millennium Copyright Act (DMCA), Lexmark claimed that a company called Static Control unlawfully sold its Smartek chips to companies that refill Lexmark printer cartridges. The Smartek chips fool the printer into thinking it has an original cartridge from Lexmark. Section 1201 of the DMCA makes it illegal to circumvent technology meant to protect copyrighted work. Static Control has halted Smartek chip sales while the lawsuit is reviewed.

Last December, the European Parliament approved a law that directs printer OEMs to eliminate the use of their smart chips in cartridges. The tact was more to promote recycling than to prevent monopolistic tendencies. If a cartridge cannot be reused, it will end up in the dump.

I am an advocate of recycling and protecting intellectual property, which would seem to place me on both sides of the printer wars. But I just don't agree with Lexmark's claim that printing is a copyrightable process. HP apparently agrees with me, saying it does not support invoking the DMCA in this instance. But that hasn't stopped HP from loading its cartridges with its own smart chips that discourage refills.

I appreciate technical innovation, but not when it is used to thwart competition that will benefit the consumer And when I say "the consumer," I include all corporate users of these printers, as these are the companies with hundreds if not thousands of the devices.

Enterprise customers are the ones with the loudest voices and the biggest purse strings. It's your job to tell your printer OEM that you prefer to have the innovation focused on improving the printing experience and not killing the competition. If you don't speak up now, you might be destined to pay far more for consumable printing supplies than you really need.

Musthaler is vice president of Currid & Company, a Houston technology assessment firm. She can be reached at linda@currid.com.

If you don't speak up now, you might be destined to pay far more for consumable printing supplies than you really need.

NetworkWorld Review

Windows patch management tools

PatchLink Update's flexibility helped it best three other products tested

■ BY MANDY ANDRESS, NETWORK WORLD GLOBAL TEST ALLIANCE

With Microsoft releasing more than 230 security bulletins since the beginning of 2000 — most of those requiring some sort of corrective action to fix a hole in one of its Windows-based products — the numbers speak for themselves: Windows patch management in an enterprise environment is a nightmare.

We tested four stand-alone Windows patch management products — BigFix's Enterprise Suite, Gravity Storm Software's Service Pack Manager 2000, PatchLink's Update and Shavlik Technologies' HfNetChk Pro to find out if they improve patch deployment. (See "Not in the game" for declining vendors, below.)

Patch management tools should identify accurately which patches are missing on each system, provide an easy means to deploy patches and provide administrative reports tracking patch status across multiple machines.

The products we tested (see How we did it, www.nwfusion.com, DocFinder: 4537) attack the problem in two ways — with or without agent software. Agent-based products — such as those from PatchLink and BigFix — can greatly reduce network traffic by offloading processing and analysis to the target system, saving data until it needs to report to the central server. But they also force an administrator to manage software on all systems the product analyzes.

With agentless products — such as those from Shavlik and Gravity Storm — you don't have any distributed management issues, but whenever a scan is requested all tests and communications travel over the network. If scanning a domain with a large number of systems, the increase in network traffic can be quite significant.

PatchLink's Update 4.0 earned the Network World Blue Ribbon award for its ease of use, flexibility, automation and letting you easily create deployment packages.

PatchLink has two components — PatchLink Update Server and the agent. The Update Server is installed on a Windows 2000 Server with SP2 and Internet Information Server (IIS). The installation process sets up a Microsoft Data Engine (MSDE) database, which can be upgraded to a full SQL Server after installation. This upgrade is recommended for large organizations.

You easily can push the agents to targeted machines using the Agent Install Wizard, or agents can be installed during the logon process.

For management purposes, administrators connect to the PatchLink server through a Web interface, which lets you view reports, deploy packages, create packages and view system inventory.

PatchLink, the company, monitors Microsoft and other vendors, such as Citrix Systems and Adobe, for newly released patches. PatchLink engineers test the patches, put them into PatchLink's proprietary package format and deploy them to customers' local PatchLink servers through a periodic subscription-checking process, which occurs over Secure Sockets Layer at a time the administrator configures.

Administrators receive e-mail informing them of a new patch on the PatchLink server. If it is a critical patch, it also is downloaded to the Update Server on the customer's network. Noncritical patches will be downloaded at the administrator's request.

PatchLink automatically caches critical patches on the Update Server, a marked difference from BigFix and the agentless products. Caching patches is useful and the recent Sapphire/Slammer SQL Server worm proves the point. If a worm or other malicious act is taking place that slows down the Internet, how will administrators download patches to their critical servers? With cached patches, you already have the files at your location.

On the other hand, cached patches must be stored somewhere, so your system needs to include adequate disk space.

We very easily deployed all necessary patches to one machine and deployed a single patch to multiple machines with PatchLink Update Server. We controlled whether the system rebooted automatically and could set our own deployment flags, providing detailed control not found in the other products.

One of the best administrative features PatchLink offers is its ability to let administrators configure groups of machines with baseline patch settings. If a computer in the group is missing any patches defined in the baseline set, they are automatically installed on the computer.

Another key feature PatchLink offers is the ability to create your own patches out of the box. You can issue registry changes or distribute software using this tool. In our test, we added antivirus software to the baseline configuration. A system on the network that did not have this software automatically received it via PatchLink Update.

PatchLink inventories the hardware and software installed on a system, providing an easy means of monitoring licensing levels. You can place locks on system configurations so you are alerted if anything on the system changes.

In terms of disaster recovery, if something happens to the system, you build a new machine with the same name and reinstall PatchLink Update on it. All the agents will report in as if nothing happened. Administrators will lose historical deployment data, but they will not have to reinstall all the agents.

BigFix Enterprise Suite

BigFix includes three components — Server, Console and Agent. The Server maintains the data and performs the processing tasks. The Console is the administrative Windows graphical user interface (GUI) application with embedded HTML components. The Agent software is installed on managed systems. The product also includes access to the BigFix Enterprise Security Site, which is the vendor's repository for security information.

The core of BigFix's product is a technology called fixlets, messages that monitor, detect and fix identified problems, such as a missing hot-fix. Fixlets have attributes that define a problem, a description of the problem and a recommended fix.

Installing this product is a three-step process. The server runs on Win 2000 Server with SP2. MSDE is installed with the product if an existing database is not found on the system. SQL Server can be used to increase scalability.

You select which machines need agents, and the server installs the software remotely. The footprint of the agent is relatively small, running about 4.5M bytes. In our tests, the agent had some issues identifying missing patches. On one system, it identified a patch as missing when it actually was installed on the system.

You can deploy patches to one or many machines. Because the agents are always monitoring the system, BigFix also includes an option to install a patch whenever it is relevant on a system.

Fixlets can automatically reboot the system, display a message to the user, be distributed over a period of time to reduce network traffic and be scheduled to run at a specific date and time. When deployment starts, the patch is downloaded from the BigFix site to the local server and then to the machines scheduled to receive the patch.

Patch distributions worked well in our test, but BigFix doesn't provide the same detailed control as PatchLink nor does it let customers create their own packages unless they purchase a separate development environment.

Reports are generated by a separate engine, which is launched with the BigFix console, but requires a separate logon. Default reports include computer properties,

Not in the game

We limited this review to stand-alone patch management products, meaning we did not include enterprise management products that required the purchase of another product before you could use patch management features. This criteria excluded ConfigureSoft's Security Update Manager, BladeLogic and Microsoft's SMS.

St. Bernard and Ecora declined to participate because new versions of their stand-alone patch management products were not available in time for testing.

operating systems distribution, relevant fixlets and relevant fixlets over time.

Shavlik HfNetChk Pro

HfNetChk Pro is the enterprise version of the popular HfNetChk tool Microsoft distributes. Enterprise-level features include a management GUI and the ability to push patches out to systems. HfNetChk Pro, an agentless product, installs on a Win NT, 2000 or XP system, requiring no additional software on the target machines.

Installation takes only minutes. System requirements include Microsoft Data Access Components (MDAC) 2.6 SP2 or later, Windows Installer Version 2.0, XML Parser 3.0 SP2 and Jet 4.0 SP3. If any of these components are missing, the installer informs you and provides a link to the Microsoft site to access them.

HfNetChk Pro uses the base HfNetChk engine, which is based on the XML and cabinet (CAB) files that Microsoft maintains, to determine which patches are installed and which are missing from the system. A CAB file is a Microsoft file type used to compress files for distribution. Shavlik also has added its own information to the XML file, such as information pertaining to patches and vulnerabilities in MDAC and Java Virtual Machines. When checking for missing patches, HfNetChk Pro uses a combination of checks, including file versions, checksums and registry keys. If any information is incorrect, HfNetChk will let you know in its reports.

The HfNetChk Pro ships with a command-line facility but its GUI is the best of the products we reviewed — very intuitive and easy to use. An excellent scan configuration wizard is included. Stepping through the wizard to create a scan, you have the option to scan one machine, one domain, multiple machines, multiple domains, IP address ranges or a variation thereof. You can create a text file listing what should be scanned and import that data into HfNetChk. Scans can be named and listed in the favorites section of the program, which is used to store frequently used scans, for easy launching. Scans also can be scheduled to run periodically.

For scan options, HfNetChk can report on necessary (or required) patches and/or explicitly installed patches. Administrators also have the option of scanning only for patches from Windows Update, the free patch service that Microsoft provides. You also can set thread settings that control how much network traffic the product creates. Of course, the less traffic created, the longer the scan time.

HfNetChk Pro did a good job scanning the network. It quickly identified all the servers in the domain. Scans also took a short amount of time, running about 2 minutes for our five servers.

Patch deployment can be performed with a mouse click. One patch can be deployed to all necessary systems, or all patches required on a single system can be deployed. The patches are downloaded from Microsoft and stored in the selected location.

The patch to be installed will be copied to the target machine and installed at the scheduled time. System reboots can be controlled, as can shutting down SQL or IIS server, backing up files for uninstall or using quiet mode for installation.

We found no issues with patch deployment for this product. The patch deployment wizard is easy to use and lets you specify whether you want to reboot the server, remove temporary installation files and the like. However, you don't have the detailed flag control that you have with PatchLink.

When deploying multiple patches to a single machine, HfNetChk Pro creates a batch file for deployment and uses Qchain.exe, a tool that Microsoft provides, to let all patches be installed and use only one reboot.

Reports can be printed by machine, patch, operating system, machine detail or missing service packs.

Gravity Storm SPM 2000

SPM 2000 is another agentless product. Like with HfNetChk Pro, installation takes just a few minutes. SPM 2000's one main requirement is that Windows Internet Name Service be installed because it is used for name resolution.

The GUI is not as intuitive as HfNetChk Pro, but it provides a lot of the same functionality. SPM 2000 clearly differentiates between operating system patches and product patches — Gravity Storm's term for any non-operating system patch — by providing different GUI tabs for these two categories.

With SPM 2000, administrators can scan by domain or individual system. They also can create Virtual Custom Networks, which is a fancy way of describing the ability to create your own groupings.

SPM 2000 does provide some system information, such as available disk space, running processes and diagnostics. You also can view the event log, send alert messages or remove network shares from any remote machine through the SPM 2000 GUI.

Scans, called NetQueries in SPM 2000, can run immediately or be scheduled periodically. Scan results can be logged to a CSV file for further analysis.

SPM 2000 works faster than HfNetChk Pro, but it is not as accurate. When scanning the network for systems, it often missed an available server. Also, when scanning systems for missing patches, it never properly scanned Server 1 in our test bed. No other products had any issues finding this system. Additionally, on one server that already had the Win 2000 Security roll-up package installed, SPM 2000 reported that all the patches included in that roll-up were not installed on the system.

For deployment, patches must first be downloaded into the download directory, which can be located on any network-attached storage device the administrator selects. This can occur when patches are deployed or at an earlier time, but this process cannot be automated. Gravity Storm maintains its own inventory of hot-fixes that Microsoft released on its own site. To update the patch information in SPM 2000, Gravity Storm implemented a Live-Update feature. This requests the latest database from Gravity Storm and immediately imports the information into SPM 2000, making the latest patch information available to subsequent NetQueries. LiveUpdate also can be scheduled to run unattended.

Once the service pack or hot-fix has been downloaded, the patch can be deployed. A hot-fix can be deployed to multiple

Net Results

Winner BLUE RIBBON

3.85 RATING

PatchLink Update 4.0

Company: Patchlink, www.patchlink.com, (480) 970-1025 **Pros:** Detailed package control; ability to create own deployment packages; provides system inventory information. **Cons:** Uses large amount of system resources when requesting reports.

3.33 RATING

HfNetChk Pro 3.8.103

Company: ShavlikTechnologies, www.shavlik.com, (800) 690-6911 **Pros:** Excellent, easy-to-use scan configuration wizard; simple, informative reports; one-click patch deployments. **Cons:** Focuses only on Microsoft patches.

3 RATING

BigFix Enterprise 2.0

Company: BigFix, www.bigfix.com, (510) 652-6700 **Pros:** Innovative Fixlet; small agent fingerprint; easy agent deployment. **Cons:** Includes multiple components to install; reports are completely separate module; reported installed patches as missing.

2.6 RATING

Service Pack Manager 2000

Company: Gravity Storm Software, www.securitybastion.com, (866) 450-7931 **Pros:** Very fast scan time. **Cons:** Confusing interface, reported patches as missing when they were installed; missed some machines on the network.

What's the score?	PatchLink Update 4.0 (BLUE RIBBON WINNER)	HfNetChkPro 3.8.103	BigFix Enterprise 2.0	Service Pack Manager 2000
Features and functionality 35%	4	3	3.5	3
Patch support and deploment 35%	4	3.5	2.5	2.5
Reporting 15%	3.5	3	3	2
Ease of use 15%	3.5	4	3	2.5
TOTAL SCORE	3.85	3.33	3	2.6

Individual category scores are based on a scale of 1 to 5. **Percentages** are the weight given each category in determining the total score. ■ **Scoring Key: 5:** Exceptional showing in this category. Defines the standard of excellence **4:** Very good showing. Although there may be room for improvement, this product was much better than the average. **3:** Average showing in this category. Product was neither especially good nor exceptionally bad. **2:** Below average. Lacked some features or lower performance than other products or than expected. **1:** Consistently subpar, or lacking features being reviewed.

machines, and multiple hot-fixes can be deployed to a single machine. By default, machines are rebooted after installation but an administrator can override this function. Deployments can occur immediately or be scheduled.

Administrators also can deploy user-defined hot-fixes, which can be any Microsoft-issued patch along with the proper command-line switches and parameters.

As with other products, the time it takes to deploy a patch depends on the amount of network traffic available to transfer the patch. PatchLink compresses the patch for transfer, which speeds up the process a bit.

One nice feature is that administrators can create profiles comprising a selection of hot-fixes and service packs. Systems can be compared against these defined profiles to check for compliance. However, these profiles must be updated manually to reflect any new hot-fix releases.

The reporting engine in SPM 2000 is not as robust or flexible as the engine in HfNetChk Pro. It creates an HTML report based on the last NetQuery that shows all patch information by computer.

Andress is president of ArcSec Technologies, a security company focusing on product reviews and analysis. She can be reached at mandy@arcsec.com.

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DocFinder: 4536

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What about Microsoft?

For smaller or cash-strapped companies looking to automate Windows patch management tasks, Microsoft provides several patch management tools, some of which are available for free.

For small businesses, Microsoft recommends using its basic Windows Update Service, the same service most consumers use to keep their Windows systems up to date. The autoupdate client for Windows Update is included in Windows XP and Windows 2000 Service Pack 3.

For larger organizations, or those that want to centralize patch management internally, Microsoft offers Software Update Services (SUS). SUS is basically a Windows Update Server housed on your corporate network. Using a Win 2000 Server and installing SUS software, which is a free download from Microsoft, you can point the autoupdate clients on all your systems to your internal server. The internal server synchs with Microsoft's Update Servers to provide up-to-date patch installations. One note: SUS only synchs critical updates for Windows. To configure the client systems to monitor the internal SUS server, the changes can be made through Group Policy or by manual registry changes on each system.

For larger companies, Microsoft released the SUS Feature Pack to its existing System Management Server (SMS) product. While organizations must purchase an SMS server and clients, the SUS Feature Pack is a free add-on. So for organizations already using SMS, the Feature Pack provides a cost-effective means of providing enterprise patch management. The feature pack uses HfNetChk, Microsoft's freely available patch tool licensed from Shavlik Technologies, as its engine to show patches that are installed on a machine and those that are missing. A wizard then lets administrators create SMS deployment packages to enable the missing patches to be installed on the necessary systems.

Microsoft offers some powerful patch management tools for free, but they are not designed to scale to very large corporations. SMS has the ability to support a large organization, but it is a bit of overkill if you are just looking for patch management. Additionally, the free Software Update Service only supports "Critical" updates, so you will miss out on any other deployments Microsoft releases.

XRN Interconnect architecture

NetworkWorld Review

New XRN architecture offers high availability, low cost

■ BY DAVID NEWMAN, NETWORK WORLD GLOBAL TEST ALLIANCE

3Com is targeting the enterprise backbone with its new Expandable Resilient Networking architecture, and our tests support 3Com's claim that its XRN interconnect technology combines high availability with excellent performance.

3Com, long a player in workgroup switching, is adding redundancy features to top-end models to compete with established enterprise backbone vendors, including Cisco, Extreme Networks and Foundry Networks. By using the XRN Interconnect Kit to aggregate multiple switches as one virtual unit, 3Com says it is matching competitors' availability and performance — at a significantly lower price. For example, 3Com says two of its 4060 switches connected in an XRN stack would cost $1,061 per Gigabit Ethernet port, vs. $1,859 per port for Cisco's Catalyst 4500 and $1,914 per port for Extreme's Alpine 3800 in equivalent configurations.

Furthermore, 3Com says the stackable nature of the XRN approach lets users take a pay-as-you-go approach, purchasing new capacity as needed.

The basic idea behind XRN is to interconnect backbone switches so they offer full redundancy at Layer 2 and Layer 3. Our tests, in which we tested a 3Com SuperStack 4050 and SuperStack 4060 connected via the XRN Interconnect Kit, showed that this redundancy worked well, with subsecond failover in all cases. To create redundancy, users first connect core switches to create an XRN stack, and then dual-attach workgroup switches or computers to the stack. In a Layer 3 environment, the XRN stack appears as one device with a single IP and media access control (MAC) address, even though each element in the stack contains its own routing table. In testing, this design worked as intended. The XRN stack offered line-rate throughput for Layer 2 traffic and throughput equivalent to around 95% of line rate for Layer 3 traffic.

If one element in the XRN stack fails, the routing table of another element in the stack takes over. 3Com says it keeps the different routing tables synchronized through periodic triggered updates using a feature called Distributed Resilient Routing (DRR).

A major differentiator of the XRN approach is its use of active-active load sharing. Competitors' switches allow Layer 2 redundancy via spanning-tree bridging, but this is an active-passive approach. With spanning tree, one switch sits idle until a link, interface or switch fails. With XRN, more bandwidth is available because all switches in the XRN stack share the load until a failure occurs.

Similarly, competitors' switches can add Layer 3 redundancy through protocols such as the Virtual Router Redundancy Protocol (VRRP) or proprietary variations from Cisco, Extreme and Foundry. Only one router is active at a time with these protocols, whereas all components in an XRN stack will forward traffic until a failure occurs.

In theory, users could achieve Layer 3 redundancy and active-active availability with any Layer 3 switch by using a combination of VRRP and the equal-cost multipath feature of Open Shortest Path First (OSPF) routing. However, 3Com says this approach requires more configuration and management with no gain in performance — an assertion supported by our test results.

3Com says XRN's ease of configuration and expandability are other key features. Because the XRN stack appears to other devices as a single router, only one routing table needs to be administered.

To increase available bandwidth, XRN also supports 802.3ad link aggregation for dual-homed connections. For example, two switches could be interconnected with two Gigabit Ethernet links, which appear as one virtual circuit with 2G bit/sec of capacity in either direction.

One downside of the XRN approach is that it's proprietary. It's not possible to build an XRN stack with switches from 3Com and other vendors. Then again, even though VRRP is an open standard, most companies tend to implement it with matched pairs of devices from one vendor.

Put to the test

To assess XRN performance, we conducted two sets of tests: First, we evaluated XRN's resiliency by measuring recovery times when we severed a link or disconnected the power to one of the XRN stack's components. Second, we ran Layer 2 and Layer 3 stress tests to determine the devices' forwarding and delay characteristics.

For all tests, we set up the XRN switches the way they're most commonly used: as highly redundant backbone switches handling traffic from Layer 2 workgroup devices. In this case, the redundancy came by dual-attaching 3Com SuperStack 4400 workgroup switches to each of two XRN devices: a SuperStack 4050 and 4060. Both switches in the XRN stack appeared to the workgroup switches as a single IP and MAC address.

The devices we tested use character-based menus for configuration. While the menu layout was intuitive, we wouldn't want to have to wade through menus when configuring dozens of ports. 3Com says a command-line interface with text upload and download is in the works.

In the resiliency and failover tests, we configured a Spirent SmartBits generator/analyzer to offer traffic to one of the SuperStack 4400 workgroup switches, all destined to the other workgroup switch across the XRN stack.

Around 10 seconds into the test, we physically disconnected one of the two cables connecting the first SuperStack 4400 to the XRN stack. Some frame loss is inevitable because the XRN stack redirects all traffic over the remaining interface. We derived failover time from the number of frames dropped.

In five trials, Layer 3 failover always occurred in less than 1 second. On average, it took 822 millisec for all traffic to be redirected onto the remaining uplink to the XRN core stack. We got even better results when disconnecting power from one switch in the XRN stack during the test. It took only 438 millisec to failover all traffic to the remaining switch.

These results are roughly comparable with failover times for other enterprise backbone switches using OSPF equal cost multipath (See "Testing 10 GBE Switches," www.nwfusion.com, DocFinder: 4427). There are some differences from the earlier results, however: The 3Com switches also offered full redundancy of routers, not just links, using 3Com's proprietary DRR protocol. Furthermore, the 3Com approach required configuration and management of one router per XRN stack, while OSPF equal cost multipath requires configuration and monitoring of at least two routers. The advantage of the first feature is redundancy of the whole

Net Results

XRN Interconnect architecture

4.4 RATING

Company: 3Com, (800) 638-3266, www.3com.com **Cost:** $40,585*. **Pros:** High availability, low cost, excellent performance. **Cons:** Proprietary; no OSPF for a few more months; only two switches supported in first release.

What's the score?	XRN Interconnect architecture
Resiliency features 25%	5
Forwarding performance 25%	4.5
Price 25%	5
IP routing support 15%	2.5
Ease of use 10%	4
TOTAL SCORE	4.4

*Includes 3Com Switch 4050, Switch 4060 and XRN Interconnect Kit.

Individual category scores are based on a scale of 1 to 5. **Percentages** are the weight given each category in determining the total score. ■ **Scoring Key: 5:** Exceptional showing in this category. Defines the standard of excellence. **4:** Very good showing. Although there may be room for improvement, this product was much better than the average. **3:** Average showing in this category. Product was neither especially good nor exceptionally bad. **2:** Below average. Lacked some features or lower performance than other products or than expected. **1:** Consistently subpar, or lacking features being reviewed.

device, not just a single link. The advantage of the second feature is simplified configuration and management.

We used the Spirent SmartBits analyzer/generator to offer traffic to 20 Fast Ethernet ports on each of the Superstack 4400 devices, with traffic destined to all 20 Fast Ethernet ports on the other SuperStack 4400 in a partial mesh pattern.

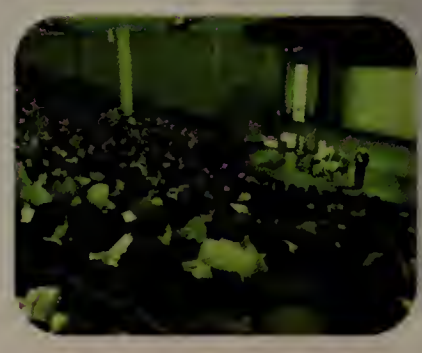
For Layer 2 forwarding, the 3Com switches performed perfectly. We measured line-rate throughput with 64-, 256- and 1,518-byte frames.

Latency was also low, with four switches adding average delay of just 31 microsec for 64-byte frames, 120 microsec for 256-byte frames, and 478 microsec for 1,518-byte frames. These numbers don't come anywhere close to the point where application performance would be degraded.

The XRN switches didn't quite run at line rate in our Layer 3 tests. The switches achieved throughput equivalent to around 94% of line rate when routing 64-byte IP packets, 97.5% of line rate when routing 256-byte IP packets, and around 95% of line rate when routing 1,518-byte IP packets. 3Com officials say the slight differences in Layer 2 and Layer 3 results are because of the hashing algorithm used.

Then again, even though the switches' Layer 3 throughput was lower, latency still was well below the point where it would disrupt applications. We recorded average delays of 46 microsec, 112 microsec and 395 microsec for 64-, 256- and 1,518-byte packets, respectively. The delays are not only very respectable compared with other 100Base-T devices but also far too small to have any appreciable effect on application performance.

Newman is president of Network Test in Westlake Village, Calif., an independent benchmarking and network design consultancy. He can be reached at dnewman@networktest.com.



XRN road map

3Com plans a three-phase rollout of XRN technology. Phase 1 products are shipping now. These support interconnection of two switches at a distance of up to 16 feet using a proprietary cable.

We tested XRN support on 3Com's SuperStack models 4050 and 4060. XRN support also is available on the vendor's SuperStack 3 models, 4900, 4900SX, 4924 and 4950.

For IP routing, Phase 1 switches support Routing Information Protocol. 3Com says it will support Open Shortest Path First within three to six months.

In Phase 2, scheduled for release by year-end, up to four switches can be interconnected using fiber Gigabit Ethernet connections. The only distance limits are those for the fiber links, currently defined as 1.24 miles. In Phase 3, expected sometime in 2004, up to eight switches will make up an XRN stack, again with the only distance limitation being that of the Gigabit Ethernet interconnect.

Global Test Alliance

■ **Newman** also is a member of the Network World Global Test Alliance, a cooperative of the premier reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance.

Face-off

Does bankruptcy give companies an unfair advantage?

Two industry insiders debate whether filing Chapter 11 gives firms a leg up on competitors.

YES, by Janice Aune

PHOTO BY CHAD DOWLING

NO, by David Lynn

There is absolutely no doubt that bankruptcy gives some companies an unfair advantage. But perhaps the focus should be less on the companies and more on the public policy that enables this inequity. Let me explain from the perspective of a regional service provider that operates a 3,500-mile network in Minnesota, and provides wholesale services to global and regional carriers.

The telecom industry is unlike many other businesses. It's more like an ecosystem than a flowchart — we buy services from providers, sell services to those same providers and, in some cases, compete with those providers. There's an ebb and flow of data, network capacities and fiber, and it works as long as everyone pays for their share. When one company fails, it has wide-reaching effects.

There are two primary examples of how the current bankruptcy system hampers the ability of solvent companies to compete. First, bankruptcy law enables something that I call the Chapter 11 Bankruptcy Car Wash. In the car wash, the bankrupt company washes off its debt, leaving many of its vendors in the dust. The bankrupt company, armed with an artificially low-cost structure, can then lower prices to below-market rates, forcing solvent companies to lose customers or drop prices to artificially low rates to compete. This creates a dangerous marketplace. We must ask, 'What drove the behavior of these companies before bankruptcy? Do our public policies compel these companies to change their behavior?' I don't think so, which leads to my second example.

Chapter 11 bankruptcy protection laws disrupts the telecom arena, which directly affects my company. In a Chapter 11 proceeding, a judge will approve a list of critical vendors to the filing company. These vendors will immediately get paid for their prepetition debt. Our experience has shown that when one of our customers files for Chapter 11, we are designated as an administrative vendor and, therefore, it is unlikely we would be paid.

As a telecom provider, we accept the public responsibility that comes along with providing essential services. In other industries, a business can cut off services if a customer isn't paying its bills. By law, however, we are restricted from cutting off services to a nonpaying customer. If we stopped providing service for nonpayment by a carrier customer, we would severely affect the nation's telecom infrastructure — potentially isolating large communities or critical services. I am not advocating any policy that would endorse putting end users at risk of being cut off from vital services such as 911.

I am asking that lawmakers look at policies that place essential service providers in inequitable positions. If we — as a society — agree that our national telecom infrastructure consists of essential service providers, then we would agree we should maintain a status that reflects that position throughout the Chapter 11 bankruptcy process.

Aune is president and CEO of Onvoy, a Minneapolis telecom provider. She can be reached at janice.aune@onvoy.com.

Why should a mismanaged company or, worse, one that has deliberately cooked the books, be able to waltz through Chapter 11, emerge streamlined and cleansed of its sins, and then be able to outperform its unreorganized competitors? Isn't that somehow unfair? The simple answer is, no. There are almost no barriers to entering the world of bankruptcy. Even solvent companies are eligible. Virtually any company with the means to hire a bankruptcy attorney and $830 for the filing fee can file its own Chapter 11 and take advantage of the same laws. But they don't, except as a last resort, and there are many reasons for this.

A company in Chapter 11 operates in a fishbowl, under the scrutiny of the court, creditors and officials of the U.S. Department of Justice who monitor Chapter 11 cases. As a rule, the company must get court approval before it can take on secured debt, hire attorneys or accountants, increase management's pay, sell off its assets, or do many other things. In many cases, committees of creditors are set up, with the right to hire their own attorneys and other professionals and investigate the company's affairs, all at the debtor's expense.

A Chapter 11 company that owes secured debt might have to get court permission before using its cash or receivables. The company must convince the court that its use of the cash is likely to result in recovering even more cash — an interesting problem for the typical company that has been losing money hand over fist before its bankruptcy.

To emerge from bankruptcy, the company must first prepare and obtain approval for a disclosure statement and then formulate a plan for its fiscal diet. Creditors get to vote on the plan, and at least one class of creditors whose claims are compromised must vote to accept the plan. Meanwhile, the company needs to maintain its relationships with its customers and suppliers despite the strains bankruptcy creates, all while competitors are circling to take bites of whatever business they can.

None of this is easy. If you doubt it, ask any executive who has maneuvered a company through the Chapter 11 process how willing he would be to go through it again.

On top of it all, bankruptcy usually wipes out all the old stock — including that held by top executives of the company. So if you need a good reason why Chapter 11 would be a last resort for troubled companies, you need look no further than the enlightened self-interest of management.

Bankruptcy takes its toll on companies passing through it. Fewer than 20% of companies filing for Chapter 11 achieve confirmed plans, and even some of those are liquidation plans. Clearly, companies that can avoid bankruptcy are best off doing so. For firms that need it, it is a valuable tool, providing overextended companies breathing room and tools to regroup — tools that are available to all.

Lynn is a board-certified business bankruptcy attorney with the firm Docter, Docter & Lynn in Washington, D.C. He can be reached at dlynn@bankruptcy-docter.com.

More online!

Log on to Network World Fusion to voice your opinion. Face-off authors Janice Aune and David Lynn will add their thoughts to the discussion.

DocFinder: 4522

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Support savings

Tapping Usenet and vendor sites for technical help and updates conserves time and money.

■ BY DENI CONNOR

Is the support you find online for problems with your network gear worth it? That depends on where you search, whom you ask for help and how much time you have to find an answer, IT managers say.

"It all depends on the situation," says Edd Smith, storage architect for Cox Communications, a large cable provider in Atlanta. "We use quite a few different approaches, all centered around the Internet. We also have a few guys who use Usenet a lot."

Usenet is a collection of more than 15,000 newsgroups and discussion lists where you can submit messages about computers, hobbies or a variety of topics, and others can respond. These free discussion lists are easily accessed from Google Groups (http://groups.google.com), which lets you search by date, newsgroup or keyword for subjects of interest. Volunteers and peers who simply want to help when needed maintain the groups.

A plethora of other free and dependable sources for network information also exist where users can download the latest patches, fixes and updates for their software or hardware. There are discussion forums that volunteer systems operators maintain, such as Novell's product support forums; vendor sites, such as Cisco software center, and mailing lists for Network Appliance file server users.

Smith pays for technical support contracts covering the network gear he uses. However, he also taps free sites for patches, fixes, drivers and other software his company might need. "Sometimes we are just searching the Web looking to see what updates are available, what problems they fix and if they apply to our situation," he says. "In a proactive way, we download current revisions [for software and hardware] and install them."

Smith has more than 300 Solaris and Windows NT servers attached to both direct-attached storage, EMC Symmetrix and Clariion storage arrays, and he says he finds EMC's PowerLink site particularly useful.

If you're looking for help with operating systems, you're likely to find newsgroups helpful, too.

"As a former Novell [systems operator] for Novell's support forums, the support you get there many times surpasses what you get when you call a vendor's technical support," says Terry Rodecker, a senior network administrator for a large financial institution in Oklahoma City. "On the forums, you're actually working with people who have been through it all, not just folks who are reading from a script."

Another user, Mike Maday, LAN manager at Vanderbilt University in Nashville, says the Google search engine provides one of the most direct and fastest ways to find help online.

"I just search for error codes online at Google," Maday says. "For instance, if I have a Cisco switch with a problem, I'll grab the error code off of it and type it into Google's search box. Within the first 20 hits, I'll be able to find someone else who has already fixed it. This morning I was updating boot disks for Novell's ZENworks — I searched online and found it. No phone calls were needed."

But online forums and discussion lists, for all their help, have caveats. Sometimes they can offer unreliable or flippant advice, users say.

"We usually search Google Groups first for answers," Rodecker says. "For the most part Usenet groups are very helpful. I wouldn't recommend a novice use the online resources, as they have no real way of knowing if the information they're getting is accurate or not, and novices don't have the experience to guide them in determining the good from the bad advice."

Ryan Brooks, lead programmer/analyst for the Governor's IT Initiative at the University of Louisiana at Lafayette, has tapped Usenet with hit-or-miss results.

"If the problem you're encountering is one that is commonly posted to the board, you'll get a couple of quick replies that often drip with sarcasm, because you were unable to find the answer yourself [which had already been answered on the group before]," Brooks says.

"If, however, the problem is challenging, it will either go unanswered or will die out after a few replies. It seems no one on Usenet has enough investment in other people's problems to have much staying power," Brooks says.

Rodecker says that if timeliness is important, he'll skip the online search and go straight to the vendor's support, either on the phone or online. But "if the answer can wait a little or isn't important to actually getting around an issue [such as a workaround has already been put in place], we'll use the online sites," he says. ■

More online!

Find a sampling of some of the Web's most-popular support resources.

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Edd Smith, storage architect for Cox Communications, relies on EMC's PowerLink site to keep his arrays running.

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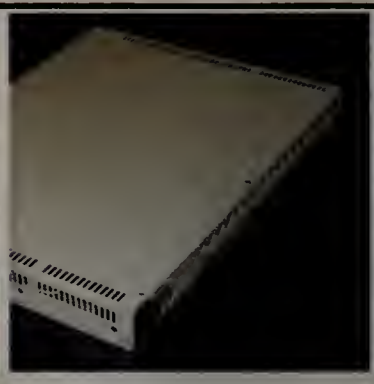

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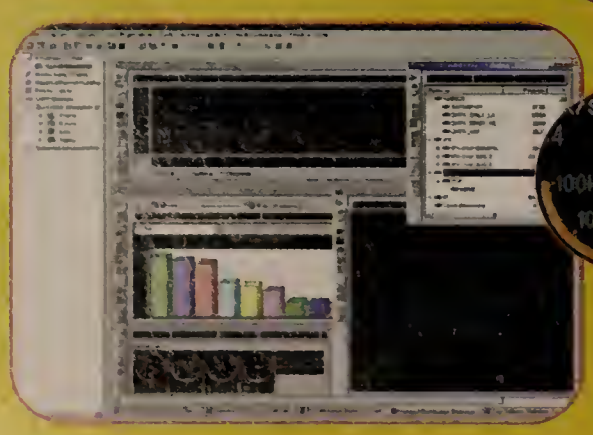

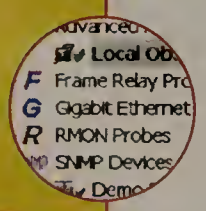

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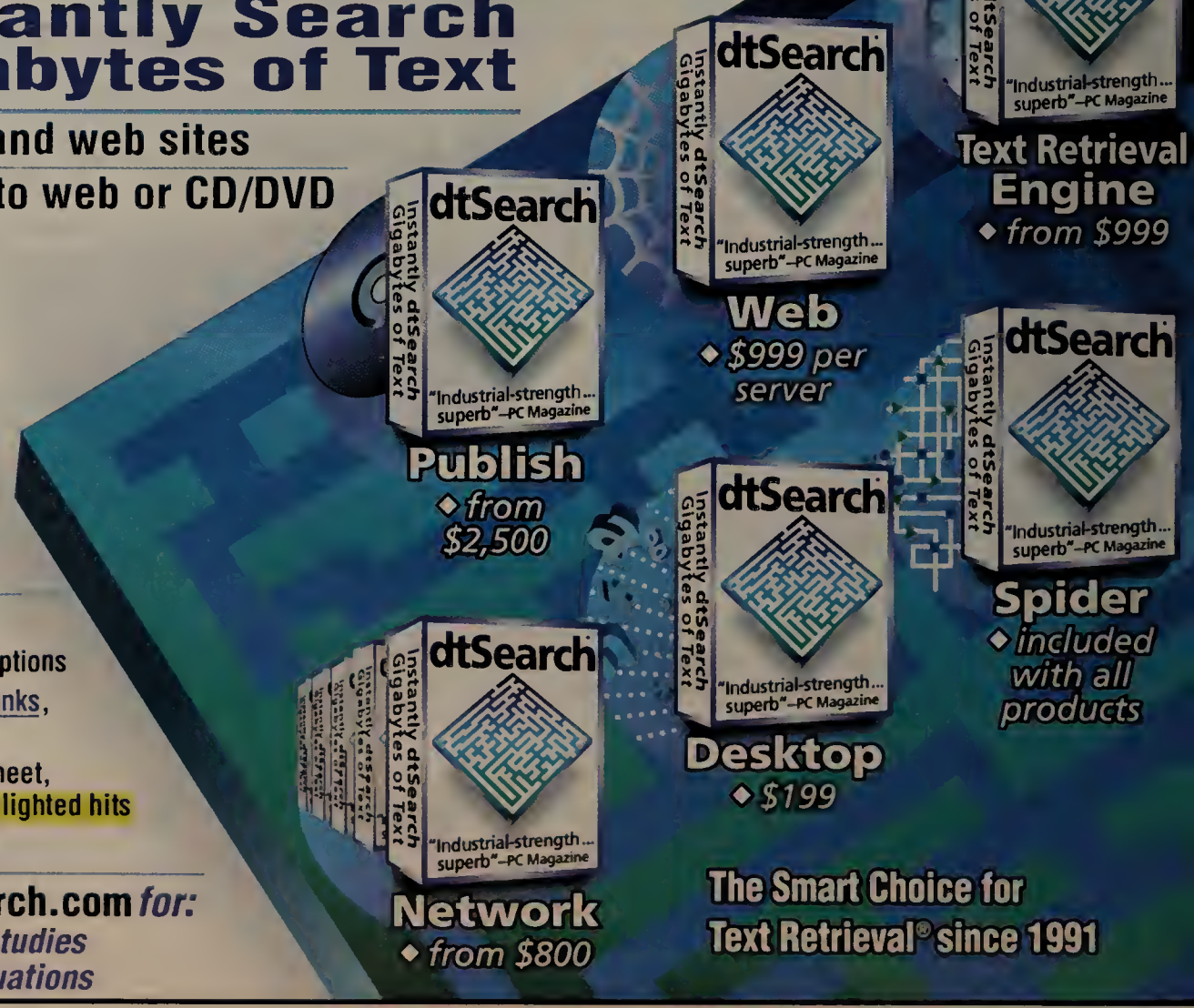

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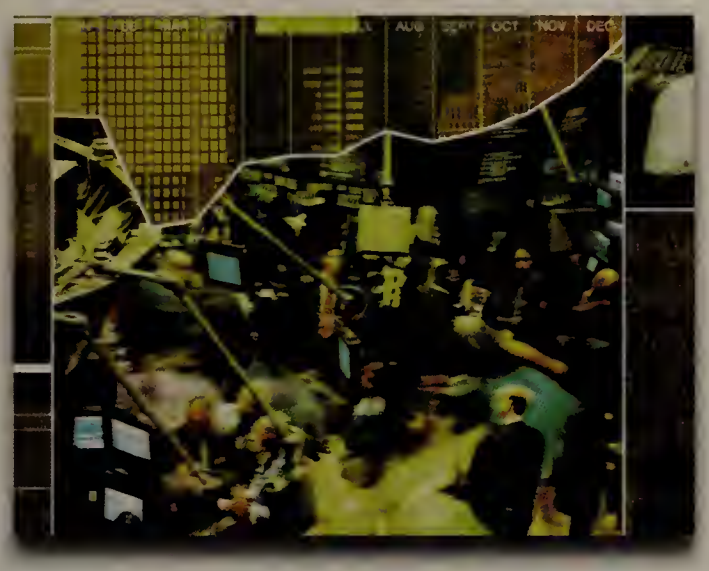
IT Careers in Financial Services

Among the most aggressive industries using information technology to enable business is financial services. Despite the upheaval of the past two years, the industry continues to lean on information technology and its professionals to drive change in the future. Over the next 12 to 48 months, the priorities for the industry – whether a traditional banking institution such as Wells Fargo or E*Trade, which introduced online trading 20 years ago – fall into four categories: security, peer-to-peer networking, mobility and web applications.



The issue of security was evident when the Slammer worm hit the Internet in January, closing down ATMs across the country for at least part of the weekend. For E*Trade, which has the second largest automatic transaction machine network in the United States, that kind of problem is a killer. Peer-to-peer networking is an issue for Wells Fargo as it consolidates nationwide operations. And for Edward Jones, extending the business capability and service to customers through mobility, new web applications and security is a model for what most institutions face.

Rodney Gee, general principal over human resources in information systems at Edward Jones, has a short list in terms of priorities for IT professionals in the future. The base is technical skills, which at Jones translates to Java-based programming, database development, system programming and administration, and network and technical architecture. "We look for people who have demonstrated the ability to learn new skills," says Gee. "So if you don't have Java but have proven to be an excellent programmer in another language, we'll help you get that capability."

Edward Jones, headquartered in St. Louis, supports a world network of locations, and IT pros align to the businesses. "So it's important to be able to leverage the capabilities of a teammate," says Gee. "At Jones that is much more important than your abilities as a lone ranger. And, probably, the biggest thing needed before folks move on in their careers is understanding the bigger business context and how IT can enable that business model."

Keith Irwin, manager of learning and development at Wells Fargo Services, says creating this type of workforce encompasses myriad programs. His group provides more than 350 courses online. The courses are configured into maps that track with Wells Fargo's careers of the future. "There's no one thing that keeps me awake at night," he admits. "It's the full range. In financial services, we're still using mainframes, but we also are moving rapidly in the areas of web applications to deliver services to customers.

"That means we're working to cover all the bases because we can't afford to fall behind in any one."

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*Indicates Regional Demographic

Microsoft fights for your digital rights

■ BY JOHN FONTANA

REDMOND, WASH. — Microsoft last week aired plans to help users secure corporate documents with digital rights management technology. It's a move observers say should bring awareness to the technology, but hardly would signal the start of widespread adoption.

Corporate acceptance of DRM still must endure growing pains and overcome issues such as deployment and ease-of-use barriers; establishing trust networks; cost and infrastructure requirements; and the fact that only certain users could benefit from the technology.

Those factors have kept things quiet despite the introduction of products from vendors such as Authentica, Adobe, Liquid Machines and IBM, which is recasting its Electronic Media Management System for the WebSphere platform. Microsoft says it hopes to make noise in this market with its forthcoming Windows Server 2003 and Office 2003, which will work together to support DRM through the company's new Windows Right Management Services technology.

The market might be ripe because companies are committing more intellectual assets to digital media, as well as dealing with federal regulations such as the Health Insurance Portability and Accountability Act (HIPPA) governing document confidentiality.

The ability to restrict who can see, forward, copy or print data based on a set of managed rights embedded in a file has become an intriguing idea. But the technology has to be easy to use or it will fall into the same quagmire that once stifled secure e-mail, experts say.

"A lot of people tell us they have been thinking of protecting content, but it has not translated into sales," says Ray Wagner, research director for information strategies at Gartner. The market is so small that Gartner does not measure it.

"Microsoft should raise visibility of the market," Wagner says. "The question is: 'Is there a general marketplace?'"

That answer has been "no," although DRM is in use today in tens of thousands of e-books, including some using technology from Microsoft called Digital Asset Server. And companies such as publisher Jane's Information Group and programmable logic device manufacturer Xilinx use DRM technology to protect data and price catalogs they publish electronically.

One thing that has kept DRM down is deployment demands that foreshadow high costs.

"DRM is a huge infrastructure play to roll out," says Joshua Duhl, an IDC analyst. "You have servers, clients and the need to create an entire trusted system."

Microsoft won't necessarily make that easier, and brings along its own adoption issues, he says.

"Microsoft's solution is only for Microsoft, not for Macintosh, Linux or Unix," he says. And Duhl says Microsoft's support of the Extensible Rights Markup Language won't bring interoperability.

But some experts say that Microsoft could make DRM less expensive. For the first time it will be available to companies that upgrade both Windows servers and Office applications.

"This looks like something we could take advantage of, especially for distributing documents to off-campus clinics in light of HIPAA regulations," says Jeff Allred, manager of network services for the Duke University Cancer Center in Durham, N.C. "We've been hoping Microsoft would do something." ■

More online!

Ten things you should know about DRM.

DocFinder: 4455

Cisco

continued from page 1

control the operating of machinery on a factory or plant floor, and relay data about equipment and industrial processes to monitoring and control applications.

While Cisco and others have sold standard 19-inch stackable switches for use in manufacturing applications, those products sometimes created problems, according to Carl Staab, manager of communication technology product development at Emerson Process, Power and Water Solutions in St.Louis. Staab's company, which makes process-control equipment for water and electrical utilities and sewer treatment plants, will start using the Catalyst 2955 in the control systems it sells to utilities because of its ruggedness and small size, features that are key for the device to be installed inside factory-equipment cabinets.

The Catalyst 2955 uses no fans, which can break down or suck in dust in a factory environment, and runs on a 24-volt DC current, which is the standard for industrial equipment. The box also can include two single-mode or multimode Fast Ethernet fiber uplink ports.

For security, the switch supports Layer 3 access control lists, which protect the devices from unauthorized access. Quality of service (QoS) is supported, which can allow for capabilities such as packetized machine control traffic over HTTP or SNMP management packets. Rapid Spanning Tree Protocol (RSTP), which provides subsecond Layer 2 network rerouting in case of a downed switch, also is included.

For the "client" end of the industrial networks, Lantronix, a maker of embedded network servers, will announce at the show its DSTni-XPress DR industrial device server — essentially an Ethernet network interface card for industrial equipment. When integrated into the circuitry of PLC or other equipment, the DSTni-XPress DR translates legacy industrial protocols such as Modbus, Manufacturing Automation Protocol or Control Information Protocol into Ethernet, and allows machine signaling to be transported via standard LAN switches instead of proprietary, protocol-specific communications equipment.

Staab, says Ethernet on the factory floor is a boon for industrial IT equipment buyers.

"With the advancements in Ethernet over the years," such as RSTP and QoS, Staab says, "we can get the robustness we need. Why should I buy a proprietary network at a hundred times the cost? We're going to see Ethernet really driving down the costs of manufacturing companies over time."

United Parcel Service (UPS) is using Ethernet as a machine control protocol in its Louisville, Ky., Worldport facility, which is a centralized trucking, airport and package-sorting facility.

Between midnight and 5 a.m. each day, the Worldport facility processes up to 304,000 packages per hour on a system of conveyor belts, automated bar-code scanning devices and cameras that all work in harmony and are controlled by Ethernet-connected PLCs.

While the equipment-scanning and package-moving equipment communicates with the Modbus protocol, the back-end systems track the progress of packages and allow for package tracking are Web-based. With some custom-made Modbus-to-HTTP software that UPS developers wrote, back-end servers can track exactly where a package is in the sorting process and gauge package volume, letting managers know when to throttle the system up or down. Fitting Ethernet and Web technologies over its existing machinery let UPS keep costs down when it constructed Worldport, says Jack Blaisdell, program manager for the Worldport facility.

The idea of connecting differing technologies to increase efficiency in factories will be a major theme at the conference. Attendees will be urged to plan for networks that support collaboration. "Manufacturers need to get a long-term view of an architecture that will share information quickly," says Mike Burkett, research director for AMR Research.

He says companies with homegrown, legacy systems for developing and storing data — such as designs and pricing — need to install portals that can tap these systems so the information is easier to view widely. They also should look to more sophisticated exchange software that enables interactions such as business transactions, online meetings and sharing of applications, he says.

Collaboration in the supply chain can result in better inventory management because changes in orders can be processed more quickly, averting oversupply, Burkett says. In product design, collaboration can mean faster time to market and better products because business partners will have more chances to refine designs before products are finalized.

Also on the collaboration front, automotive supplier Trelleborg Automotive in South Haven, Mich., will share its experience converting paper business collaboration to an electronic system, saving time and money. The company has automated three processes using the nProcess Toolkit from NexPrise. ■

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BackSpin Mark Gibbs

Nipping computer crime in the bud

PORT ST. LUCIE, FLA. — A sixth-grader accused of changing his marks on a teacher's computer said he needed better grades to get his father to let him play computer games at home again. The 11-year-old used his teacher's electronic grade book to turn a few 40s on reading assignments into 80s. A password was required, but teacher Susan Seal had logged on and walked away. . . . [The boy] was booked Monday at the St. Lucie County jail on a felony intellectual property charge. . . . Prosecutor Ellen Mancini said the boy was unlikely to get jail time.

— HeraldTribune.com, Feb. 16, 2003

You've just got to love stories like that. Here we have a kid doing the sort of stupid thing that kids do, and his school and the district attorney's office are treating it as a felony!

So what is a felony? According to the Merriam-Webster dictionary, a felony is "a grave crime . . . for which the punishment in federal law may be death or imprisonment for more than one year."

Wow. But what's odd is that the child's deed doesn't match any intellectual property crime I can identify. Check out the "Quick Reference Sheet of Felony Charges to Consider and Relevant Issues to Consider in Typical Intellectual Property Cases" from The Computer Crime and Intellectual Property section of the Department of Justice (see www.nwfusion.com, DocFinder: 4563). Can you find anything in that document that is relevant to the "crime" in question?

And what intellectual property was involved? Or is this one of those peculiar legal things? Whichever way you look at it, the charge is questionable. So why was this foolish act elevated to such a remarkable level?

I only can assume that it is, once again, the knee-jerk response to computer crime. The problem is that computer crime is a huge catchall that covers electronic fraud, software cracking, illegal software and digital media distribution, hacking and just about any other crime that could be thrown into the pot, whether or not it is truly computer-related.

Society, in general, and the media and government, in particular, have created a crisis out of any event that can be classified as computer crime. The truth is the majority of these events are simply vandalism and petty theft.

I think we can all agree that what the kid did was stupid, but arguably what the teacher did was even dumber! She logged on to a supervisory account that provided access to privileged information she had a responsibility to protect, and she wandered away, leaving the PC open to anyone.

But is the teacher being punished for negligence? I doubt it. Is the school being criticized or prosecuted for its poor data-management practices and lack of effective privacy safeguards? Unlikely. But let's make an example of one little boy. Good idea.

This sounds a lot like the ridiculous and damaging zero-tolerance policies in schools regarding drugs and firearms, where children have been suspended for bringing things to school such as key fobs shaped like miniature guns or candies that the teaching staff didn't recognize (I'm not making this up — see This is True's Losing my Tolerance for Zero Tolerance section at DocFinder: 4564).

So I wonder, were any of the adults involved thinking or were they just reacting? According to reports, Helen Roberts, the principal of the school involved, St. Lucie West Middle School in Florida (DocFinder: 4565), will recommend that the boy be expelled! Thank heavens he wasn't writing rude words on the bathroom wall, otherwise she'd probably be having him taken out to the playground and shot.

I am definitely in favor of treating computer crime seriously, but I'm also in favor of keeping things in perspective. Treating a child's foolish actions as a felony just because a politically hot issue is involved is insane.

Legal briefs to backspin@gibbs.com.

'NetBuzz News, insights, opinions and oddities

By Paul McNamara

'Don't you dare touch that .DOC' . . . Part II

Three weeks ago we opened a can of worms here in recounting a dust-up between security expert Joel Snyder, a regular *Network World* contributor, and the IT department at another unnamed publication. Snyder was miffed about being ordered to file stories to that other magazine in .RTF rather than .DOC because that magazine's network folks "have gotten religious about stripping .DOC attachments" for fear of macro viruses.

Snyder wrote to one of that publication's editors: "Your IT people are morons. . . . If they cannot deal with this problem, they need to be fired and replaced by people who understand that a magazine is a place where people send and receive Microsoft Word documents."

We asked readers to weigh in, and about 70 of you did. The overwhelming majority sided with Snyder. Among the dissenters, only a couple went so far as to endorse stripping .DOC attachments — one called Snyder the moron — while most expressed a more nuanced disdain for Word, and, in general, Microsoft security.

"What exactly would be lost if the journalist sent his masterpiece in .TXT format?" asks one dissenter. "A vice president of finance should be allowed to distribute viral code — they are stupid and sneaky — not journalists."

(That might be the most backhanded compliment any journalist ever received.)

"How about respecting the valid concerns of a justifiably paranoid IT department and embedding the .DOC in a .ZIP file?" asks Dennis Perkins. "Maybe Word .DOCs can't carry as heavy a payload as other methods of infection, but so what? An infection is just that, and if you're in danger of infection, protect yourself."

Snyder's supporters held nothing back.

"I normally look to your column for a laugh, but this time my blood started to boil and my husband is still cleaning up the mess from where I went through the roof," writes Chey Cobb. "I've published books and written magazine columns so I know how backward some publishers can be, but blocking .DOC files was the stupidest thing I've read in a long time! Those admins should be canned."

"Thank you so much for not editing [Snyder's] 'moron' comment," adds Julie Johnson. "Too many times IT staffs issue edicts without fully understanding the impact they can have on end users actually being able to do their jobs. IT staffs forget they are there to support end users — NOT control them."

No one suggested that macros in attachments are an imaginary threat. Tactics are at issue here.

"If I were to make a bone-headed rule like that I'd be joining the ranks of the technology unemployed," writes Coyt Watters. "Have these people never heard of running and maintaining antivirus software?"

"Today, we have automatic updates and the ability to push patches through the network," adds Mike Flemmer. "Also, most modern antivirus programs have the ability to pass attachments from 'trusted' sources. There is no reason that an IT department can't make a coherent antivirus policy that enables business to do business."

Respondents also questioned the effectiveness of stripping .DOCs.

"Rename a .DOC with an AutoExec macro to an .RTF and it still runs when you open it," writes James Myler. "Let's hope the hackers don't figure that one out."

Others saw the issue in broader terms.

"The real problem here is not whether to allow .DOCs into your e-mail system, but that modern IT has become so big and complicated that no one can possibly fathom it in all its depth and complexities," writes Scott Wozny. "So instead of people being willing to talk about what they do and don't know, they'll issue edicts to prevent themselves from looking less than perfect and being made fun of at next week's D&D gaming session."

Got more to say? The address is buzz@nww.com.

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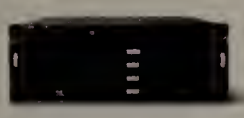

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